

**ATTACHMENT 2**

**BORING LOGS AND WELL CONSTRUCTION DIAGRAMS**

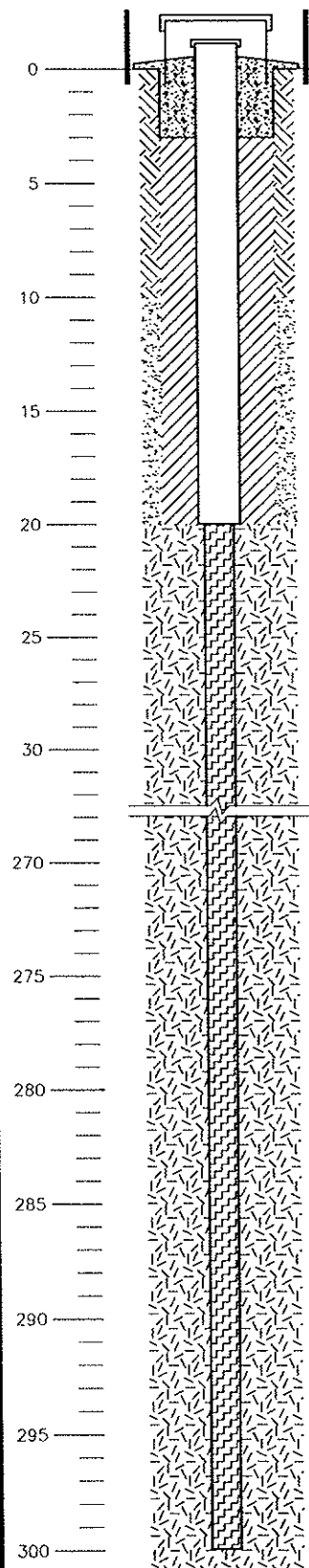
**GeoLogic Associates**  
**MONITORING WELL COMPLETION SUMMARY**

**WELL NO.: GLA-1**

**PAGE: 1 OF 1**

**JOB NO.: 9539**  
**PROJECT: PROPOSED SAN DIEGO COUNTY LANDFILL**  
**LOCATION: GREGORY CANYON, PALA AREA**  
**INSPECTOR: T. REEDER**  
**CHECKED BY: T. REEDER**

**ELEVATION GROUND LEVEL: 342.5 feet**  
**ELEVATION TOP OF CASING: 343.72 feet**  
**DATE STARTED: 11/19/96**  
**DATE FINISHED: 11/20/96**  
**TOTAL DEPTH: 300 feet**



**DRILLING SUMMARY:**

**Total Depth: 300 feet**  
**Borehole diameter: 5.5 inches O.D.**  
**Driller: Layne Cristensen**

**Rig: DUAL WALL REVERSE**  
**Bit(s): CARBIDE BUTTON BIT**

**Drilling Fluid: Air**

**Protective Casing: N/A**

**WELL CONSTRUCTION DETAILS:**

**Casing: 6-inch diameter, flush threaded, Schedule 40 PVC (boring reamed to 8-inch diameter prior to placement of casing). (From +1.22 to 20 feet.)**

**Screen: NONE - OPEN HOLE. (From 20 to 300 feet.)**

**Bentonite Seal: Bentonite pellets. (From 3 to 20 feet.)**

**Filter Pack: NONE - FRACTURED ROCK.**

**Residual Soil. (From 0 to 10 feet.)**

**DECOMPOSED ROCK. (From 10 to 20 feet.)**

**Portland Type II cement with bentonite. (From 0 to 3 feet.)**

**WELL CONSTRUCTION LOG:**

	Date	Start Time	Date	Finish Time
Drilling:	11/19/96	10:12	11/20/96	9:07
Coring:	-	-	-	-
Ream:	-	-	-	-
Geophys. Logging:	12/13/96	-	12/13/96	-
Casing Install:	11/19/96	10:36	11/19/96	12:14
Filter Placement:	-	-	-	-
Seal Placement:	-	-	-	-
Seal Placement 2nd:	-	-	-	-

**WELL DEVELOPMENT LOG:**

	Date	Start Time	Finish Time
Surge Block			
Air Lift Pumping			
Bail			
Total Gallons Removed:			

**STABILIZATION TEST DATA:**

Gallons	pH	Spec. Cond.	Temp (°F)

**Comments:**

**WELL MONITORING DATA:**

Date	Time	Reading	Corr.	Depth	SWL	By
11/20	6:30	99.5'	1.5'	234'	235.5'	TSR
12/16	-	37.1'	1.5'	296.4'	297.9'	LL

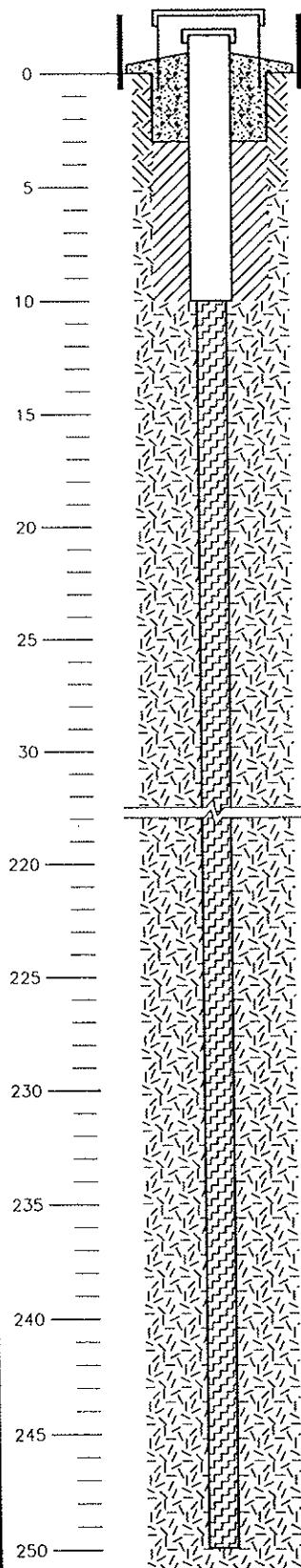
## MONITORING WELL COMPLETION SUMMARY

WELL NO.: GLA-2

PAGE: 1 OF 1

JOB NO.: 9539  
 PROJECT: PROPOSED SAN DIEGO COUNTY LANDFILL  
 LOCATION: GREGORY CANYON, PALA AREA  
 INSPECTOR: T. REEDER  
 CHECKED BY: T. REEDER

ELEVATION GROUND LEVEL: 377.1 feet  
 ELEVATION TOP OF CASING: 379.45 feet  
 DATE STARTED: 11/18/96  
 DATE FINISHED: 11/19/96  
 TOTAL DEPTH: 250 feet



## DRILLING SUMMARY:

Total Depth: 250 feet  
 Borehole diameter: 5.5 inches O.D.  
 Driller: Layne Cristensen

Rig: DUAL WALL REVERSE  
 Bit(s): CARBIDE BUTTON BIT

Drilling Fluid: Air

Protective Casing: N/A

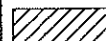
## WELL CONSTRUCTION DETAILS:



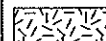
Casing: 6-inch diameter, flush threaded, Schedule 40 PVC (boring reamed to 8-inch diameter prior to placement of casing). (From +2.35 to 10 feet.)



Screen: NONE - OPEN HOLE. (From 10 to 250 feet.)



Bentonite Seal: Bentonite pellets. (From 3 to 10 feet.)



Filter Pack: NONE - FRACTURED ROCK.



Residual Soil. (From 0 to 5 feet.)



Portland Type II cement with bentonite. (From 0 to 3 feet.)

## WELL CONSTRUCTION LOG:

	Date	Start Time	Date	Finish Time
Drilling:	11/18/96	11:20	11/19/96	8:19
Coring:	-	-	-	-
Ream:	-	-	-	-
Geophys. Logging:	12/12/96	-	12/12/96	-
Casing Install:	11/18/96	11:50	11/18/96	12:48
Filter Placement:	-	-	-	-
Seal Placement:	-	-	-	-
Seal Placement 2nd:	-	-	-	-

## WELL DEVELOPMENT LOG:

	Date	Start Time	Finish Time
Surge Block			
Air Lift Pumping			
Bail			
Total Gallons Removed:			

## STABILIZATION TEST DATA:

Gallons	pH	Spec. Cond.	Temp (°F)

Comments:

## WELL MONITORING DATA:

Date	Time	Reading	Corr.	Depth	SWL	By
11/19	6:40	127.5'	1.5'	126'	247.5'	TSR
11/19	15:05	105'	1.5'	103.5'	270'	TSR
11/20	10:03	73.8'	1.5'	72.3'	301.2'	TSR
12/16	-	69.73'	1.5'	68.23'	305.27'	LL

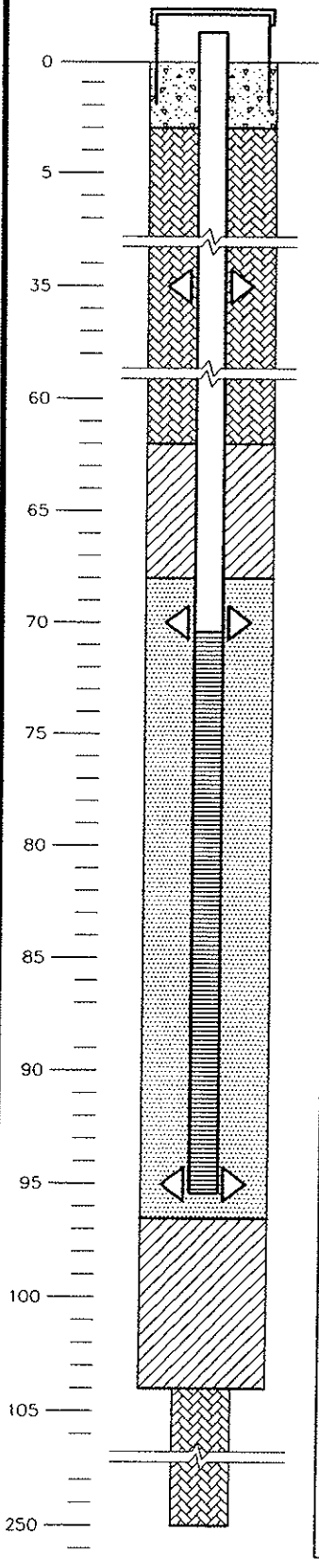
## MONITORING WELL COMPLETION SUMMARY

WELL NO.: GLA-2

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JOB NO.: 9539  
 PROJECT: GREGORY CANYON LANDFILL  
 LOCATION: GREGORY CANYON, PALA, CA  
 INSPECTOR: W. LOPEZ, CHG  
 CHECKED BY: W. LOPEZ, CHG

ELEVATION GROUND LEVEL: 377.33  
 ELEVATION TOP OF CASING: 379.39  
 DATE STARTED: 6/25/04  
 DATE FINISHED: 6/28/04  
 TOTAL DEPTH: 95.38 feet



## DRILLING SUMMARY:


Total Depth: Reamed to 104 feet  
 Borehole diameter: 8-1/2"  
 Driller: WDC EXPLORATION AND WELLS


Rig: SPEED STAR 30K  
 Bit(s): TRI-CONE


Drilling Fluid: AIR


Protective Casing: 9-5/8" diameter steel  
 conductor from 0 to 20'


## WELL CONSTRUCTION DETAILS:


 Casing: 4" diameter, flush threaded,  
 Sch. 40 PVC.  
 (From +2.06 to 70.38 feet.)


 Screen: 4" diameter, flush threaded,  
 Sch. 40 PVC with 0.020" slots.  
 (From 70.38 to 95.38 feet.)

 Filter Pack: #3 Monterey type sand.  
 (From 68 to 96.5 feet.)

 Bentonite Seal: Medium chipped bentonite.  
 (From 62 to 68 feet and  
 from 96.5 to 104 feet.)

 Grout Seal: Neat cement slurry with 5%  
 bentonite.  
 (From 3 to 62 feet and  
 from 104 to 250 feet.)

 Centralizer: Stainless steel.  
 (At 35, 70 and 95 feet.)

 Cement: From 0 to 3 feet.

## WELL CONSTRUCTION LOG:

	Date	Start Time	Date	Finish Time
Drilling:	11/18/96	11:20	11/19/96	8:19
Coring:	-	-	-	-
Geophys. Logging:	12/12/96	-	12/12/96	-
Bottom Seal Placement: (Grout/Bentonite)	6/24/04	14:00	6/28/04	10:41
Ream:	6/25/04	15:00	6/28/04	9:00
Casing Install:	6/28/04	10:28	6/28/04	10:55
Filter Placement:	6/28/04	10:41	6/28/04	10:23
Seal Placement: (Bentonite)	6/28/04	11:03	6/28/04	11:08
Seal Placement: (Grout)	6/28/04	12:20	6/28/04	13:00

## WELL DEVELOPMENT LOG:

	Date	Start Time	Finish Time
Surge Block	7/06/04	11:44	11:58
Bailing	7/06/04	12:00	12:07
Pumping			

Total Gallons Removed: 10

## STABILIZATION TEST DATA:

Gallons	pH	Spec. Cond. (µS/cm)	Temp (°F)

## Comments:

Well was developed by surging and bailing  
 until dry.

## WELL MONITORING DATA:

Date	Time	Description	Corr.	Depth (feet)	SWL (feet)	By
7/26/04	7:30	20 days after well development	-	76.58	300.75	WBL

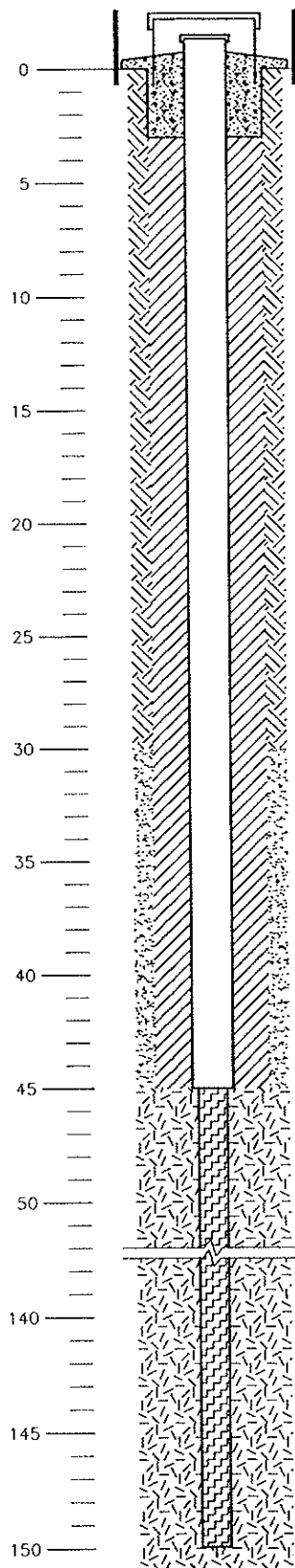
## MONITORING WELL COMPLETION SUMMARY

WELL NO.: GLA-3

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JOB NO.: 9539  
 PROJECT: PROPOSED SAN DIEGO COUNTY LANDFILL  
 LOCATION: GREGORY CANYON, PALA AREA  
 INSPECTOR: T. REEDER  
 CHECKED BY: T. REEDER

ELEVATION GROUND LEVEL: 330.6 feet  
 ELEVATION TOP OF CASING: 332.02 feet  
 DATE STARTED: 11/25/96  
 DATE FINISHED: 11/26/96  
 TOTAL DEPTH: 150 feet



## DRILLING SUMMARY:


Total Depth: 150 feet  
 Borehole diameter: 5.5 inches O.D.  
 Driller: Layne Cristensen


Rig: DUAL WALL REVERSE  
 Bit(s): CARBIDE BUTTON BIT


Drilling Fluid: Air

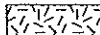
Protective Casing: N/A


## WELL CONSTRUCTION DETAILS:

 Casing: 6-inch diameter, flush threaded, Schedule 40 PVC (boring reamed to 8-inch diameter prior to placement of casing). (From +1.42 to 45 feet.)


 Screen: NONE - OPEN HOLE. (From 45 to 150 feet.)

 Bentonite Seal: Bentonite pellets. (From 3 to 45 feet.)

 Filter Pack: NONE - FRACTURED ROCK.

 ALLUVIUM/COLLUVIUM. (From 0 to 30 feet.)

 DECOMPOSED ROCK. (From 30 to 45 feet.)

 Portland Type II cement with bentonite. (From 0 to 3 feet.)

## WELL CONSTRUCTION LOG:

	Date	Start Time	Date	Finish Time
Drilling:	11/25/96	12:15	11/26/96	7:31
Coring:	-	-	-	-
Ream:	-	-	-	-
Geophys. Logging:	12/14/96	-	12/14/96	-
Casing Install:	11/25/96	12:45	11/25/96	15:33
Filter Placement:	-	-	-	-
Seal Placement:	-	-	-	-
Seal Placement 2nd:	-	-	-	-

## WELL DEVELOPMENT LOG:

	Date	Start Time	Finish Time
Surge Block			
Air Lift Pumping			
Bail			
Total Gallons Removed:			

## STABILIZATION TEST DATA:

Gallons	pH	Spec. Cond.	Temp (°F)

Comments:

## WELL MONITORING DATA:

Date	Time	Reading	Corr.	Depth	SWL	By
11/26	6:45	21'	1.5'	19.5'	309'	TSR
12/16	-	23.84'	1.5'	22.34'	306.16'	LL

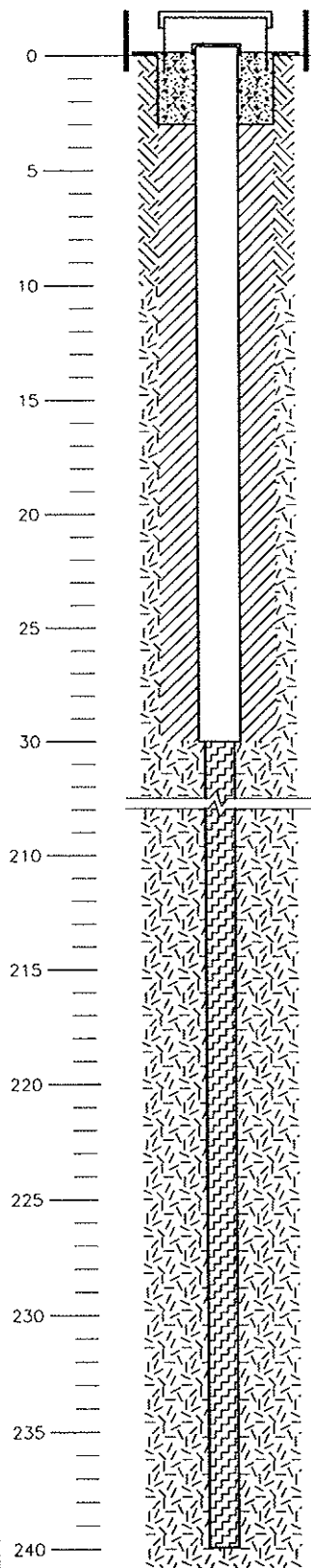
**GeoLogic Associates**  
**MONITORING WELL COMPLETION SUMMARY**

**WELL NO.: GLA-4**

**PAGE: 1 OF 1**

**JOB NO.:** 9539  
**PROJECT:** PROPOSED SAN DIEGO COUNTY LANDFILL  
**LOCATION:** GREGORY CANYON, PALA AREA  
**INSPECTOR:** T. REEDER/M. VINCENT  
**CHECKED BY:** T. REEDER

**ELEVATION GROUND LEVEL:** 904.9 feet  
**ELEVATION TOP OF CASING:** 904.99 feet  
**DATE STARTED:** 11/26/96  
**DATE FINISHED:** 11/27/96  
**TOTAL DEPTH:** 240 feet



**DRILLING SUMMARY:**


**Total Depth:** 240 feet  
**Borehole diameter:** 5.5 inches O.D.  
**Driller:** Layne Cristensen


**Rig:** DUAL WALL REVERSE  
**Bit(s):** CARBIDE BUTTON BIT

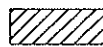
**Drilling Fluid:** Air

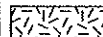
**Protective Casing:** N/A


**WELL CONSTRUCTION DETAILS:**


 **Casing:** 6-inch diameter, flush threaded, Schedule 40 PVC (boring reamed to 8-inch diameter prior to placement of casing). (From +0.09 to 30 feet.)

 **Screen:** NONE - OPEN HOLE. (From 30 to 240 feet.)

 **Bentonite Seal:** Bentonite pellets. (From 3 to 30 feet.)

 **Filter Pack:** NONE - FRACTURED ROCK.

 **Residual Soil.** (From 0 to 10 feet.)

 **Portland Type II cement with bentonite.** (From 0 to 3 feet.)

**WELL CONSTRUCTION LOG:**

	Date	Start Time	Date	Finish Time
Drilling:	11/26/96	-	11/27/96	11:08
Coring:	-	-	-	-
Ream:	-	-	-	-
Geophys. Logging:	12/17/96	-	12/17/96	-
Casing Install:	11/26/96	-	11/26/96	-
Filter Placement:	-	-	-	-
Seal Placement:	-	-	-	-
Seal Placement 2nd:	-	-	-	-

**WELL DEVELOPMENT LOG:**

	Date	Start Time	Finish Time
Surge Block			
Air Lift Pumping			
Bail			
Total Gallons Removed:			

**STABILIZATION TEST DATA:**

Gallons	pH	Spec. Cond.	Temp (°F)

**Comments:**

**WELL MONITORING DATA:**

Date	Time	Reading	Corr.	Depth	SWL	By
12/02	6:55	103.2'	1.5'	101.7'	801.8'	TSR
12/16	-	149.93'	1.5'	148.43'	755.07'	LL

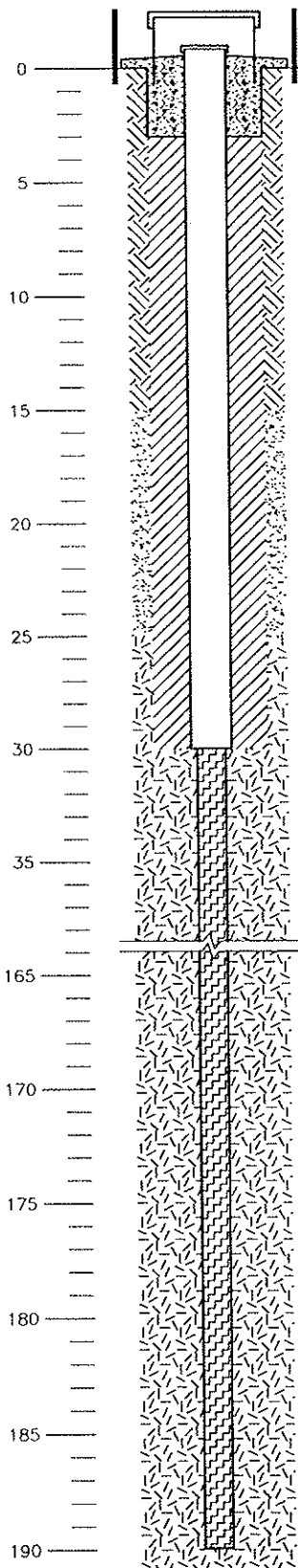
## MONITORING WELL COMPLETION SUMMARY

WELL NO.: GLA-5

PAGE: 1 OF 1

JOB NO.: 9539  
 PROJECT: PROPOSED SAN DIEGO COUNTY LANDFILL  
 LOCATION: GREGORY CANYON, PALA AREA  
 INSPECTOR: T. REEDER  
 CHECKED BY: T. REEDER

ELEVATION GROUND LEVEL: 927.1 feet  
 ELEVATION TOP OF CASING: 927.92 feet  
 DATE STARTED: 11/20/96  
 DATE FINISHED: 11/21/96  
 TOTAL DEPTH: 190 feet



## DRILLING SUMMARY:

Total Depth: 190 feet  
 Borehole diameter: 5.5 inches O.D.  
 Driller: Layne Cristensen

Rig: DUAL WALL REVERSE  
 Bit(s): CARBIDE BUTTON BIT


Drilling Fluid: Air


Protective Casing: N/A


## WELL CONSTRUCTION LOG:

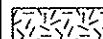
	Date	Start Time	Date	Finish Time
Drilling:	11/20/96	11:20	11/21/96	9:47
Coring:	-	-	-	-
Ream:	-	-	-	-
Geophys. Logging:	12/16/96	-	12/16/96	-
Casing Install:	11/20/96	-	11/20/96	15:57
Filter Placement:	-	-	-	-
Seal Placement:	-	-	-	-
Seal Placement 2nd:	-	-	-	-


## WELL CONSTRUCTION DETAILS:

 Casing: 6-inch diameter, flush threaded, Schedule 40 PVC (boring reamed to 8-inch diameter prior to placement of casing). (From +0.82 to 30 feet.)


 Screen: NONE - OPEN HOLE. (From 30 to 190 feet.)

 Bentonite Seal: Bentonite pellets. (From 3 to 30 feet.)

 Filter Pack: NONE - FRACTURED ROCK.

 COLLUVIUM/Residual Soil. (From 0 to 15 feet.)

 DECOMPOSED ROCK. (From 15 to 25 feet.)

 Portland Type II cement with bentonite. (From 0 to 3 feet.)

## WELL DEVELOPMENT LOG:

	Date	Start Time	Finish Time
Surge Block			
Air Lift Pumping			
Bail			
Total Gallons Removed:			

## STABILIZATION TEST DATA:

Gallons	pH	Spec. Cond.	Temp (°F)

Comments:

## WELL MONITORING DATA:

Date	Time	Reading	Corr.	Depth	SWL	By
11/21	6:30	41'	1.5'	39.5'	889'	TSR
12/16	-	42.57'	1.5'	41.07'	887.43'	LL

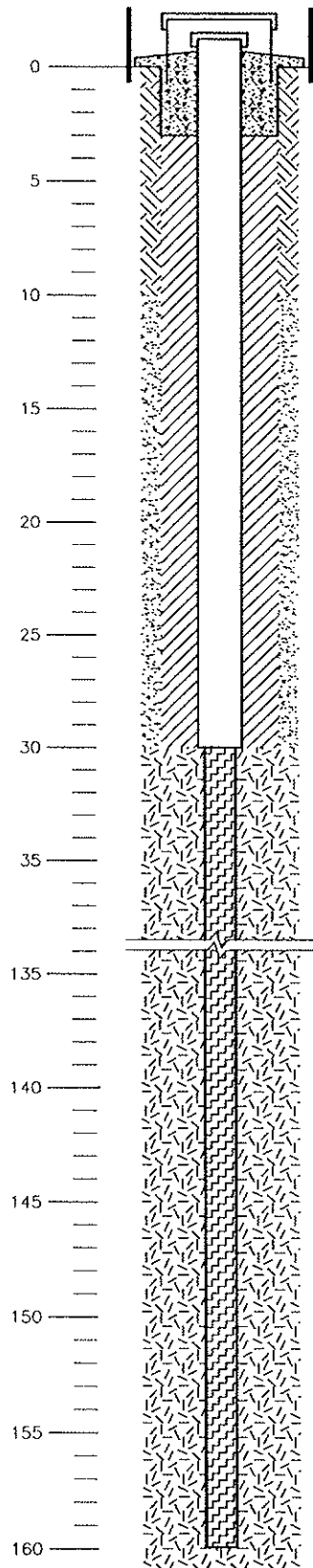
## MONITORING WELL COMPLETION SUMMARY

WELL NO.: GLA-7

PAGE: 1 OF 1

JOB NO.: 9539  
 PROJECT: PROPOSED SAN DIEGO COUNTY LANDFILL  
 LOCATION: GREGORY CANYON, PALA AREA  
 INSPECTOR: T. REEDER  
 CHECKED BY: T. REEDER

ELEVATION GROUND LEVEL: 401.6 feet  
 ELEVATION TOP OF CASING: 402.85 feet  
 DATE STARTED: 11/21/96  
 DATE FINISHED: 11/22/96  
 TOTAL DEPTH: 160 feet



## DRILLING SUMMARY:

Total Depth: 160 feet  
 Borehole diameter: 5.5 inches O.D.  
 Driller: Layne Cristensen

Rig: DUAL WALL REVERSE  
 Bit(s): CARBIDE BUTTON BIT


Drilling Fluid: Air


Protective Casing: N/A

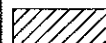
## WELL CONSTRUCTION LOG:

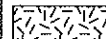
	Date	Start Time	Date	Finish Time
Drilling:	11/21/96	13:55	11/22/96	10:21
Coring:	-	-	-	-
Ream:	-	-	-	-
Geophys. Logging:	12/19/96	-	12/19/96	-
Casing Install:	11/21/96	-	11/21/96	-
Filter Placement:	-	-	-	-
Seal Placement:	-	-	-	-
Seal Placement 2nd:	-	-	-	-


## WELL CONSTRUCTION DETAILS:

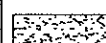
 Casing: 6-inch diameter, flush threaded, Schedule 40 PVC (boring reamed to 8-inch diameter prior to placement of casing). (From +1.25 to 30 feet.)


 Screen: NONE - OPEN HOLE. (From 30 to 160 feet.)

 Bentonite Seal: Bentonite pellets. (From 3 to 30 feet.)

 Filter Pack: NONE - FRACTURED ROCK.

 COLLUVIUM. (From 0 to 10 feet.)

 DECOMPOSED ROCK. (From 10 to 30 feet.)

 Portland Type II cement with bentonite. (From 0 to 3 feet.)

## WELL DEVELOPMENT LOG:

	Date	Start Time	Finish Time
Surge Block			
Air Lift Pumping			
Bail			
Total Gallons Removed:			

## STABILIZATION TEST DATA:

Gallons	pH	Spec. Cond.	Temp (°F)

Comments:

## WELL MONITORING DATA:

Date	Time	Reading	Corr.	Depth	SWL	By
12/16	-	34.82'	1.5'	33.32'		TSR



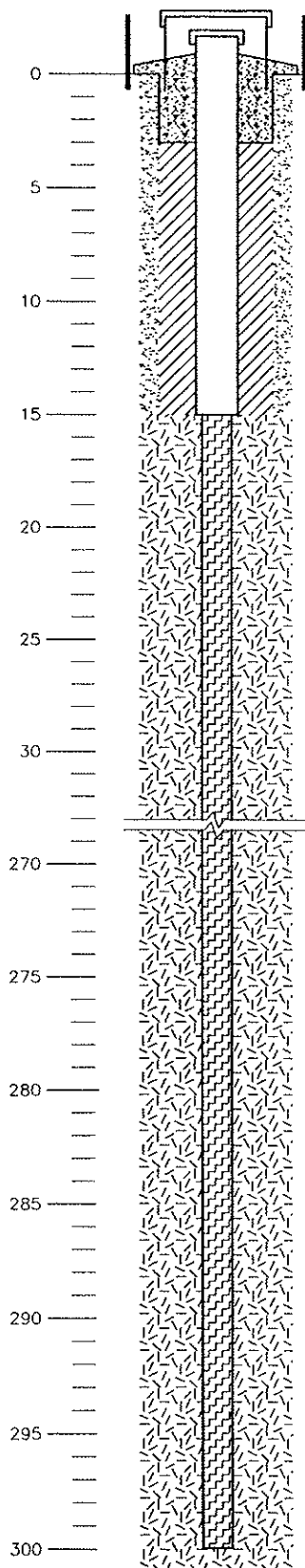
**GeoLogic Associates**  
**MONITORING WELL COMPLETION SUMMARY**

**WELL NO.: GLA-8**

**PAGE: 1 OF 1**

**JOB NO.:** 9539  
**PROJECT:** PROPOSED SAN DIEGO COUNTY LANDFILL  
**LOCATION:** GREGORY CANYON, PALA AREA  
**INSPECTOR:** M. VINCENT/T. REEDER  
**CHECKED BY:** T. REEDER

**ELEVATION GROUND LEVEL:** 632.7 feet  
**ELEVATION TOP OF CASING:** 633.11 feet  
**DATE STARTED:** 11/24/96  
**DATE FINISHED:** 11/25/96  
**TOTAL DEPTH:** 300 feet



**DRILLING SUMMARY:**

**Total Depth:** 300 feet  
**Borehole diameter:** 5.5 inches O.D.  
**Driller:** Layne Cristensen

**Rig:** DUAL WALL REVERSE  
**Bit(s):** CARBIDE BUTTON BIT

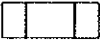
**Drilling Fluid:** Air


**Protective Casing:** N/A


**WELL CONSTRUCTION LOG:**

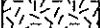
	Date	Start Time	Date	Finish Time
Drilling:	11/24/96	9:20	11/25/96	11:17
Coring:	-	-	-	-
Ream:	-	-	-	-
Geophys. Logging:	12/18/96	-	12/18/96	-
Casing Install:	11/24/96	-	11/24/96	-
Filter Placement:	-	-	-	-
Seal Placement:	-	-	-	-
Seal Placement 2nd:	-	-	-	-

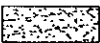
**WELL CONSTRUCTION DETAILS:**


 **Casing:** 6-inch diameter, flush threaded, Schedule 40 PVC (boring reamed to 8-inch diameter prior to placement of casing). (From +1.41 to 15 feet.)

 **Screen:** NONE - OPEN HOLE. (From 15 to 300 feet.)

 **Bentonite Seal:** Bentonite pellets. (From 3 to 15 feet.)

 **Filter Pack:** NONE - FRACTURED ROCK.

 **DECOMPOSED ROCK.** (From 0 to 15 feet.)

 **Portland Type II cement with bentonite.** (From 0 to 3 feet.)

**WELL DEVELOPMENT LOG:**

	Date	Start Time	Finish Time
Surge Block			
Air Lift Pumping			
Bail			
Total Gallons Removed:			

**STABILIZATION TEST DATA:**

Gallons	pH	Spec. Cond.	Temp (°F)

**Comments:**

**WELL MONITORING DATA:**

Date	Time	Reading	Corr.	Depth	SWL	By
11/25	6:45	61'	1.5'	59.5'	559'	TSR
12/16	-	62.40'	1.5'	60.9'	557.6'	LL

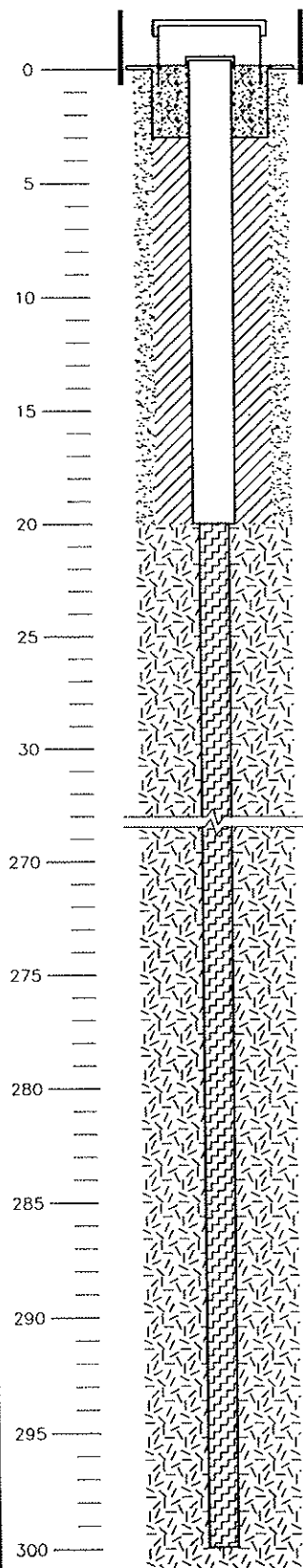
## MONITORING WELL COMPLETION SUMMARY

WELL NO.: GLA-9

PAGE: 1 OF 1

JOB NO.: 9539  
 PROJECT: PROPOSED SAN DIEGO COUNTY LANDFILL  
 LOCATION: GREGORY CANYON, PALA AREA  
 INSPECTOR: M. VINCENT/T. REEDER  
 CHECKED BY: T. REEDER

ELEVATION GROUND LEVEL: 615.4 feet  
 ELEVATION TOP OF CASING: 615.61 feet  
 DATE STARTED: 12/05/96  
 DATE FINISHED: 12/07/96  
 TOTAL DEPTH: 300 feet



## DRILLING SUMMARY:


Total Depth: 300 feet  
 Borehole diameter: 5.5 inches O.D.  
 Driller: Layne Cristensen


Rig: DUAL WALL REVERSE  
 Bit(s): CARBIDE BUTTON BIT

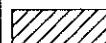
Drilling Fluid: Air

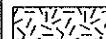
Protective Casing: N/A

## WELL CONSTRUCTION DETAILS:


 Casing: 6-inch diameter, flush threaded, Schedule 40 PVC (boring reamed to 8-inch diameter prior to placement of casing). (From +0.21 to 20 feet.)

 Screen: NONE -- OPEN HOLE. (From 20 to 300 feet.)

 Bentonite Seal: Bentonite pellets. (From 3 to 20 feet.)

 Filter Pack: NONE -- FRACTURED ROCK.

 DECOMPOSED ROCK. (From 0 to 20 feet.)

 Portland Type II cement with bentonite. (From 0 to 3 feet.)

## WELL CONSTRUCTION LOG:

	Date	Start Time	Date	Finish Time
Drilling:	12/05/96	-	12/07/96	8:57
Coring:	-	-	-	-
Ream:	-	-	-	-
Geophys. Logging:	N/A	-	N/A	-
Casing Install:	-	-	-	-
Filter Placement:	-	-	-	-
Seal Placement:	-	-	-	-
Seal Placement 2nd:	-	-	-	-

## WELL DEVELOPMENT LOG:

	Date	Start Time	Finish Time
Surge Block			
Air Lift Pumping			
Bail			
Total Gallons Removed:			

## STABILIZATION TEST DATA:

Gallons	pH	Spec. Cond.	Temp (°F)

Comments:

## WELL MONITORING DATA:

Date	Time	Reading	Corr.	Depth	SWL	By
12/07	8:57	DRY	1.5'	N/A	N/A	TSR
12/16	-	DRY	1.5'	N/A	N/A	LL

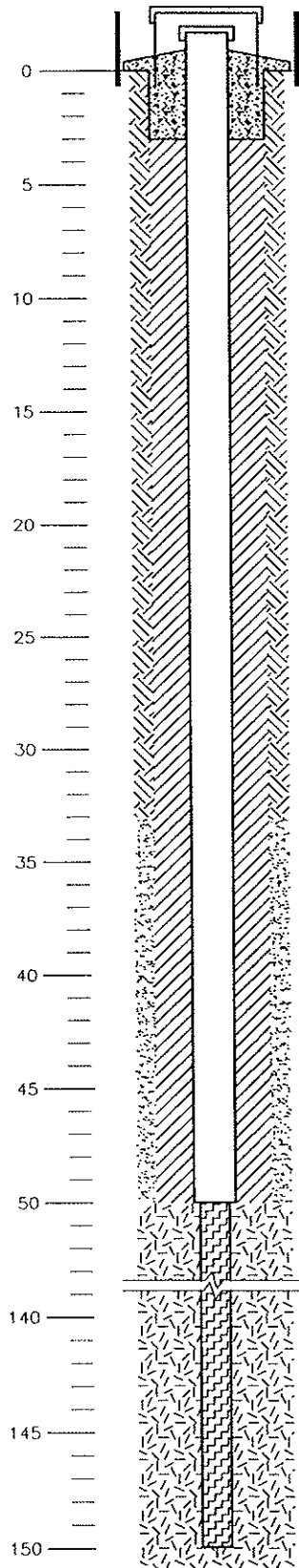
## MONITORING WELL COMPLETION SUMMARY

WELL NO.: GLA-10

PAGE: 1 OF 1

JOB NO.: 9539  
 PROJECT: PROPOSED SAN DIEGO COUNTY LANDFILL  
 LOCATION: GREGORY CANYON, PALA AREA  
 INSPECTOR: M. VINCENT/T. REEDER  
 CHECKED BY: T. REEDER

ELEVATION GROUND LEVEL: 324.6 feet  
 ELEVATION TOP OF CASING: 326.59 feet  
 DATE STARTED: 12/03/96  
 DATE FINISHED: 12/05/96  
 TOTAL DEPTH: 150 feet



## DRILLING SUMMARY:

Total Depth: 150 feet  
 Borehole diameter: 5.5 inches O.D.  
 Driller: Layne Cristensen

Rig: DUAL WALL REVERSE  
 Bit(s): CARBIDE BUTTON BIT

Drilling Fluid: Air

Protective Casing: N/A

## WELL CONSTRUCTION LOG:

	Date	Start Time	Date	Finish Time
Drilling:	12/03/96	11:57	12/05/96	11:06
Coring:	-	-	-	-
Ream:	-	-	-	-
Geophys. Logging:	12/15/96	-	12/15/96	-
Casing Install:	12/03/96	-	12/03/96	-
Filter Placement:	-	-	-	-
Seal Placement:	-	-	-	-
Seal Placement 2nd:	-	-	-	-

## WELL CONSTRUCTION DETAILS:

Casing: 6-inch diameter, flush threaded, Schedule 40 PVC (boring reamed to 8-inch diameter prior to placement of casing). (From +1.99 to 50 feet.)

Screen: NONE - OPEN HOLE. (From 50 to 150 feet.)

Bentonite Seal: Bentonite pellets. (From 3 to 50 feet.)

Filter Pack: NONE - FRACTURED ROCK.

COLLUVIUM. (From 0 to 33 feet.)

DECOMPOSED ROCK. (From 33 to 50 feet.)

Portland Type II cement with bentonite. (From 0 to 3 feet.)

## WELL DEVELOPMENT LOG:

	Date	Start Time	Finish Time
Surge Block			
Air Lift Pumping			
Bail			

Total Gallons Removed:

## STABILIZATION TEST DATA:

Gallons	pH	Spec. Cond.	Temp (°F)

Comments:

## WELL MONITORING DATA:

Date	Time	Reading	Corr.	Depth	SWL	By
12/03	-	17'	2'	15'	308'	MV
12/16	-	22.2'	2'	20.2'	300.8'	LL

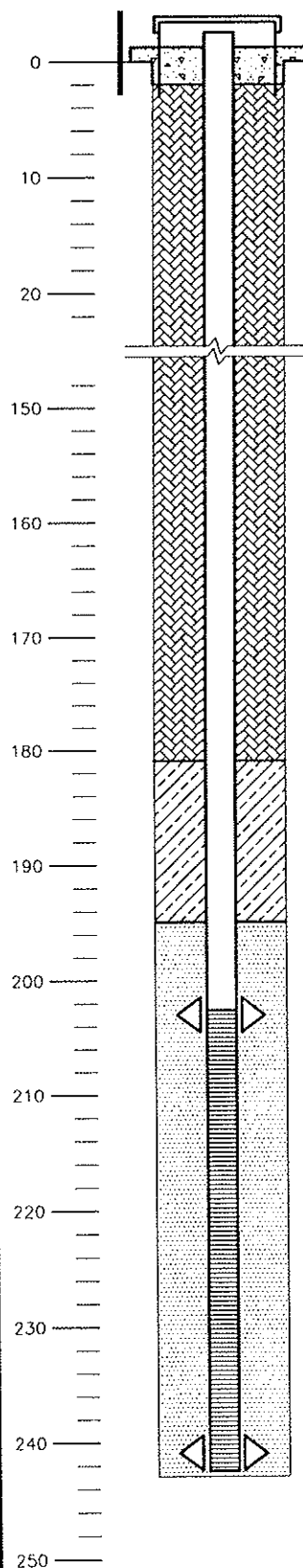
**GeoLogic Associates**  
**MONITORING WELL COMPLETION SUMMARY**

**WELL NO.: GLA-11**

**PAGE: 1 OF 1**

**JOB NO.: 9539**  
**PROJECT: DETECTION MONITORING PROGRAM**  
**LOCATION: GREGORY CANYON LANDFILL**  
**INSPECTOR: W. LOPEZ, CEG**  
**CHECKED BY: S. BATTELLE, CHG**

**ELEVATION GROUND LEVEL: 775.22**  
**ELEVATION TOP OF CASING: 777.32**  
**DATE STARTED: 11/30/99**  
**DATE FINISHED: 12/02/99**  
**TOTAL DEPTH: 242.5 feet**



**DRILLING SUMMARY:**

**Total Depth: 243 feet**  
**Borehole diameter: 6.5"**

**Driller: Water Development Corporation**  
**Rig: Dresser T-70**  
**Bit(s): Downhole Hammer**

**Drilling Fluid: Air**

**Protective Casing: None**

**WELL CONSTRUCTION DETAILS:**

**Casing:** 2" diameter Sch. 40 PVC with flush threaded joints. (From +2.1 to 202.5 feet.)

**Screen:** 2" diameter Sch. 40 PVC with 0.020" slots and flush threaded joints. (From 202.5 to 242.5 feet.)

**Grout Seal:** Portland type I-II neat cement with 5% bentonite. (From 2 to 181.0 feet.)

**Bentonite Seal:** Medium bentonite chips. (From 181.0 to 195.0 feet.)

**Filter Pack:** #3 Monterey Sand. (From 195 to 243 feet.)

**Centralizer:** Stainless steel. (At 202 and 242 feet.)

**Concrete**

**WELL CONSTRUCTION LOG:**

	Date	Start Time	Date	Finish Time
Drilling:	11/30/99	8:20	11/30/99	15:27
Coring:	-	-	-	-
Casing Install:	12/1/99	16:00	12/1/99	16:33
Filter Placement:	12/1/99	16:37	12/1/99	16:44
Seal Placement: (Bentonite Chips)	12/1/99	16:44	12/1/99	16:58
Seal Placement 2nd: (Grout)	12/2/99	10:41	12/2/99	11:10

**WELL DEVELOPMENT LOG:**

	Date	Start Time	Finish Time
Surge Block	12/7/99	11:10	11:50
Air Lift Pumping			
Other - Bailer	12/7/99	11:50	16:30

**Total Gallons Removed: 75**

**STABILIZATION TEST DATA:**

Gallons	pH	Spec. Cond.	Temp (°F)

**Comments:**

**WELL MONITORING DATA:**

Date	Time	Reading	Corr.	Depth	SWL	By
11/30/99	16:30			231' bgs		WBL
12/07/99	11:10			191.5' bgs		WBL

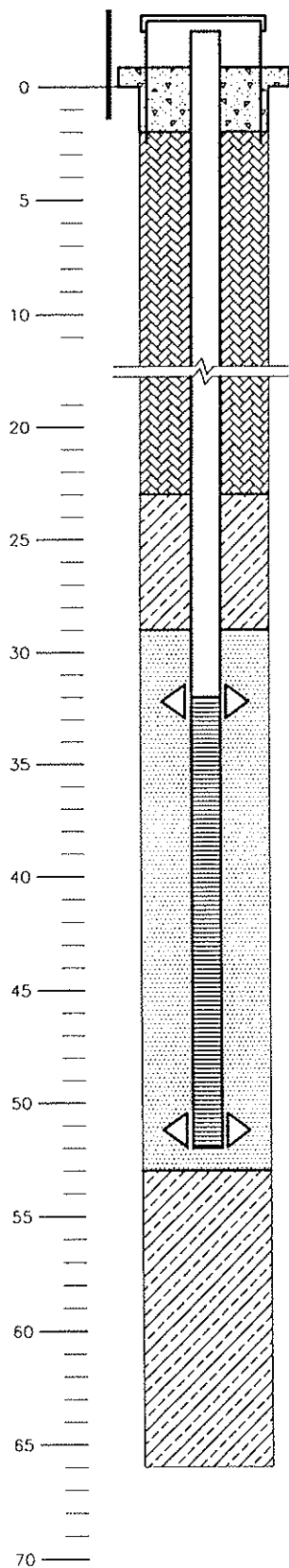
**GeoLogic Associates**  
**MONITORING WELL COMPLETION SUMMARY**

**WELL NO.: GLA-12**

**PAGE: 1 OF 1**

**JOB NO.: 9539**  
**PROJECT: DETECTION MONITORING PROGRAM**  
**LOCATION: GREGORY CANYON LANDFILL**  
**INSPECTOR: W. LOPEZ, CEG**  
**CHECKED BY: S. BATTELLE, CHG**








**ELEVATION GROUND LEVEL: 343.91**  
**ELEVATION TOP OF CASING: 345.79**  
**DATE STARTED: 11/24/99**  
**DATE FINISHED: 11/24/99**  
**TOTAL DEPTH: 52 feet**



**DRILLING SUMMARY:**

**Total Depth: 66 feet**  
**Borehole diameter: 6-5/8"**  
**Driller: Water Development Corporation**  
**Rig: Dresser T-70**  
**Bit(s): Tri-cone/Downhole Hammer**  
**Drilling Fluid: Air**  
**Protective Casing: 9-7/8" ø steel.**

**WELL CONSTRUCTION DETAILS:**

-  **Casing:** 2" diameter Sch. 40 PVC with flush threaded joints. (From +1.88 to 32 feet.)
-  **Screen:** 2" diameter Sch. 40 PVC with 0.020" slots and flush threaded joints. (From 32 to 52 feet.)
-  **Grout Seal:** Portland type I-II neat cement with 5% bentonite. (From 2 to 23 feet.)
-  **Bentonite Seal:** Medium bentonite chips. (From 23 to 29 feet and from 53 to 66 feet.)
-  **Filter Pack:** #3 Monterey Sand. (From 29 to 53 feet.)
-  **Centralizer:** Stainless steel. (At 32 and 52 feet.)
-  **Concrete**

**WELL CONSTRUCTION LOG:**

	Date	Start Time	Date	Finish Time
Drilling:	-	-	-	-
Coring:	-	-	-	-
Casing Install:	11/24/99	15:03	11/24/99	15:09
Filter Placement:	11/24/99	15:10	11/24/99	15:15
Seal Placement: (Bentonite Chips)	11/24/99	14:58 15:15	11/24/99	15:03 15:16
Seal Placement 2nd: (Grout)	11/24/99	15:35	11/24/99	15:40

**WELL DEVELOPMENT LOG:**

	Date	Start Time	Finish Time
Surge Block	12/7/99	7:20	8:05
Air Lift Pumping			
Other - Bailer	12/7/99	8:05	10:30

**Total Gallons Removed: 40**

**STABILIZATION TEST DATA:**

Gallons	pH	Spec. Cond.	Temp (°F)

**Comments:**

**WELL MONITORING DATA:**

Date	Time	Reading	Corr.	Depth	SWL	By
11/24/99	13:00			36.7' bgs		WBL
12/07/99	7:20			35.1' bgs		WBL

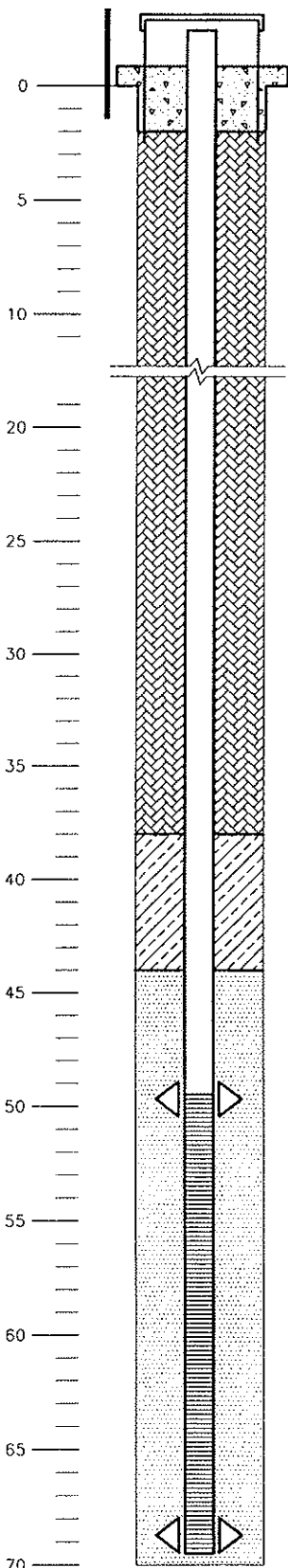
**GeoLogic Associates**  
**MONITORING WELL COMPLETION SUMMARY**

**WELL NO.: GLA-13**

PAGE: 1 OF 1

JOB NO.: 9539  
 PROJECT: DETECTION MONITORING PROGRAM  
 LOCATION: GREGORY CANYON LANDFILL  
 INSPECTOR: W. LOPEZ, CEG  
 CHECKED BY: S. BATTELLE, CHG








ELEVATION GROUND LEVEL: 355.90  
 ELEVATION TOP OF CASING: 358.15  
 DATE STARTED: 11/22/99  
 DATE FINISHED: 11/23/99  
 TOTAL DEPTH: 69.5 feet



**DRILLING SUMMARY:**

Total Depth: 70 feet  
 Borehole diameter: 6.5"  
 Driller: Water Development Corporation  
 Rig: Dresser T-70  
 Bit(s): Tri-cone  
 Drilling Fluid: Air  
 Protective Casing: 9-7/8"  $\phi$  steel.

**WELL CONSTRUCTION DETAILS:**

-  Casing: 2" diameter Sch. 40 PVC with flush threaded joints. (From +2.25 to 49.5 feet.)
-  Screen: 2" diameter Sch. 40 PVC with 0.020" slots and flush threaded joints. (From 49.5 to 69.5 feet.)
-  Grout Seal: Portland type I-II neat cement with 5% bentonite. (From 2 to 38 feet.)
-  Bentonite Seal: Medium bentonite chips. (From 38 to 44 feet.)
-  Filter Pack: #3 Monterey Sand. (From 44 to 70 feet.)
-  Centralizer: Stainless steel. (At 49 and 69 feet.)
-  Concrete

**WELL CONSTRUCTION LOG:**

	Date	Start Time	Date	Finish Time
Drilling:	11/22/99	15:00	11/23/99	8:22
Coring:	-	-	-	-
Casing Install:	11/23/99	10:26	11/23/99	10:35
Filter Placement:	11/23/99	10:35	11/23/99	10:39
Seal Placement: (Bentonite Chips)	11/23/99	10:40	11/23/99	10:42
Seal Placement 2nd: (Grout)	11/23/99	10:57	11/23/99	11:13

**WELL DEVELOPMENT LOG:**

	Date	Start Time	Finish Time
Surge Block	12/6/99	14:00	14:45
Air Lift Pumping			
Other - Bailer	12/6/99	14:45	16:30
Total Gallons Removed: 45			

**STABILIZATION TEST DATA:**

Gallons	pH	Spec. Cond.	Temp (°F)

Comments:

**WELL MONITORING DATA:**

Date	Time	Reading	Corr.	Depth	SWL	By
11/23/99	7:00			49.7' bgs		WBL
12/06/99	14:18			47.0' bgs		WBL

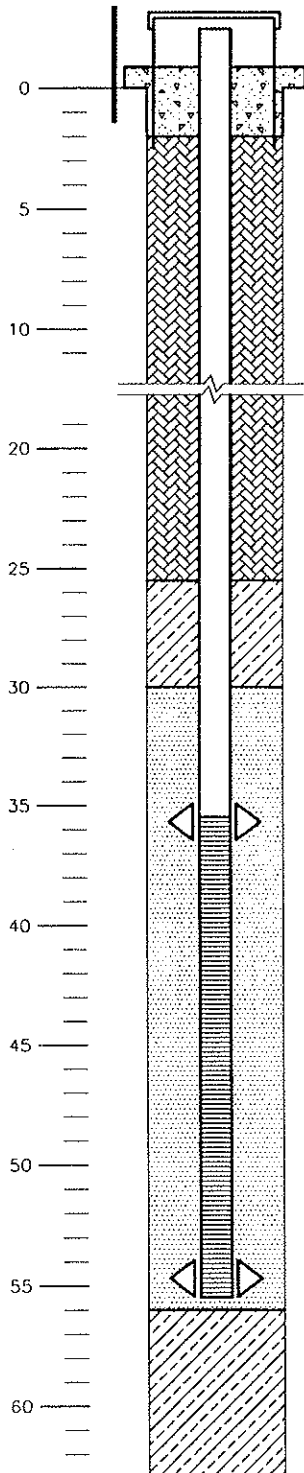
**GeoLogic Associates**  
**MONITORING WELL COMPLETION SUMMARY**

**WELL NO.: GLA-14**

**PAGE: 1 OF 1**

**JOB NO.: 9539**  
**PROJECT: DETECTION MONITORING PROGRAM**  
**LOCATION: GREGORY CANYON LANDFILL**  
**INSPECTOR: W. LOPEZ, CEG**  
**CHECKED BY: S. BATTELLE, CHG**

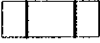


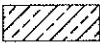

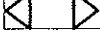

**ELEVATION GROUND LEVEL: 332.21**  
**ELEVATION TOP OF CASING: 334.13**  
**DATE STARTED: 11/21/99**  
**DATE FINISHED: 11/22/99**  
**TOTAL DEPTH: 55.5 feet**



**DRILLING SUMMARY:**

**Total Depth: 63 feet**  
**Borehole diameter: 9-7/8"**  
**Driller: Water Development Corporation**  
**Rig: Dresser T-70**  
**Bit(s): Tri-cone**  
**Drilling Fluid: Air**  
**Protective Casing: 9-7/8"  $\phi$  steel.**

**WELL CONSTRUCTION DETAILS:**

-  **Casing:** 2" diameter Sch. 40 PVC with flush threaded joints. (From +1.92 to 35.5 feet.)
-  **Screen:** 2" diameter Sch. 40 PVC with 0.020" slots and flush threaded joints. (From 35.5 to 55.5 feet.)
-  **Grout Seal:** Portland type I-II neat cement with 5% bentonite. (From 2 to 25.5 feet.)
-  **Bentonite Seal:** Medium bentonite chips. (From 25.5 to 30 feet and from 56 to 63 feet.)
-  **Filter Pack:** #3 Monterey Sand. (From 30 to 56 feet.)
-  **Centralizer:** Stainless steel. (At 35 and 55 feet.)
-  **Concrete**

**WELL CONSTRUCTION LOG:**

	Date	Start Time	Finish Date	Finish Time
Drilling:	11/21/99	7:35	11/21/99	16:15
Coring:	-	-	-	-
Casing Install:	11/22/99	8:23	11/22/99	8:28
Filter Placement:	11/22/99	8:30	11/22/99	8:36
Seal Placement: (Bentonite Chips)	11/22/99	7:52 8:38	11/22/99	7:54 8:40
Seal Placement 2nd: (Grout)	11/22/99	9:05	11/22/99	9:15

**WELL DEVELOPMENT LOG:**

	Date	Start Time	Finish Time
Surge Block	12/6/99	9:35	10:20
Air Lift Pumping			
Other - Bailor	12/6/99	10:20	12:35
Total Gallons Removed: 45			

**STABILIZATION TEST DATA:**

Gallons	pH	Spec. Cond.	Temp (°F)

**Comments:**

**WELL MONITORING DATA:**

Date	Time	Reading	Corr.	Depth	SWL	By
11/22/99	7:00			36.5' bgs		WBL
12/06/99	9:20			36.5' bgs		WBL

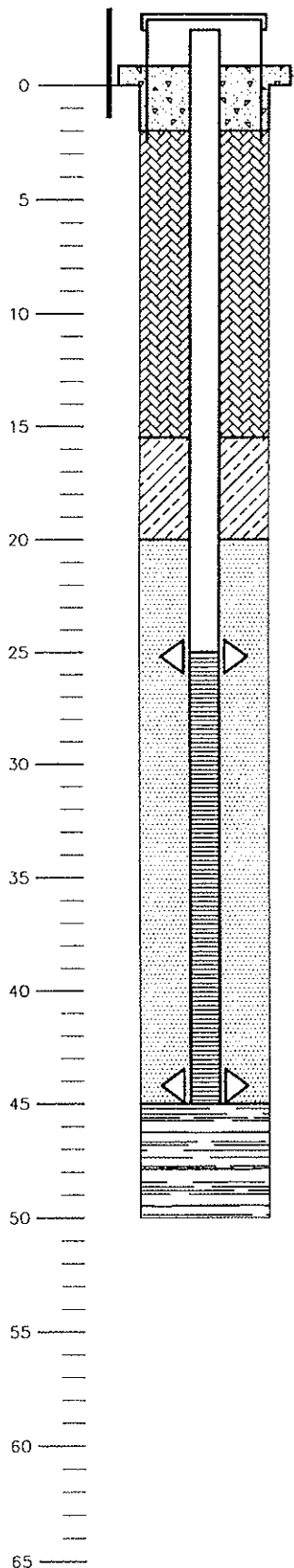
**GeoLogic Associates**  
**MONITORING WELL COMPLETION SUMMARY**

**WELL NO.: GLA-15**

**PAGE: 1 OF 1**

**JOB NO.: 9539**  
**PROJECT: DETECTION MONITORING PROGRAM**  
**LOCATION: GREGORY CANYON LANDFILL**  
**INSPECTOR: W. LOPEZ, CEG**  
**CHECKED BY: S. BATTELLE, CHG**

**ELEVATION GROUND LEVEL: 304.82**  
**ELEVATION TOP OF CASING: 306.80**  
**DATE STARTED: 11/19/99**  
**DATE FINISHED: 11/20/99**  
**TOTAL DEPTH: 45 feet**



**DRILLING SUMMARY:**

**Total Depth: 50 feet**  
**Borehole diameter: 9-7/8"**

**Driller: Water Development Corporation**  
**Rig: Dresser T-70**  
**Bit(s): Tri-cone**

**Drilling Fluid: Air**

**Protective Casing: 9-7/8"  $\phi$  steel.**

**WELL CONSTRUCTION LOG:**

	Date	Start Time	Date	Finish Time
Drilling:	11/19/99	13:10	11/19/99	17:10
Coring:	-	-	-	-
Casing Install:	11/20/99	8:30	11/20/99	8:37
Filter Placement:	11/20/99	8:40	11/20/99	13:00
Seal Placement: (Bentonite Chips)	11/20/99	13:08	11/20/99	13:12
Seal Placement 2nd: (Grout)	11/20/99	14:45	11/20/99	15:20

**WELL CONSTRUCTION DETAILS:**

**Casing:** 2" diameter Sch. 40 PVC with flush threaded joints. (From +1.98 to 25 feet.)

**Screen:** 2" diameter Sch. 40 PVC with 0.020" slots and flush threaded joints. (From 25 to 45 feet.)

**Grout Seal:** Portland type I-II neat cement with 5% bentonite. (From 2 to 15.5 feet.)

**Bentonite Seal:** Medium bentonite chips. (From 15.5 to 20 feet.)

**Filter Pack:** #3 Monterey Sand. (From 20 to 45 feet.)

**Centralizer:** Stainless steel. (At 25 and 45 feet.)

**Concrete**

**Slough**

**WELL DEVELOPMENT LOG:**

	Date	Start Time	Finish Time
Surge Block			
Air Lift Pumping			
Other -			

**Total Gallons Removed:**

**STABILIZATION TEST DATA:**

Gallons	pH	Spec. Cond.	Temp (°F)

**Comments:**

**WELL MONITORING DATA:**

Date	Time	Reading	Corr.	Depth	SWL	By
11/20/99	7:00			25.0' bgs		WBL
11/21/99	8:30			11.7' bgs		WBL
12/08/99	8:50			12.3' bgs		WBL



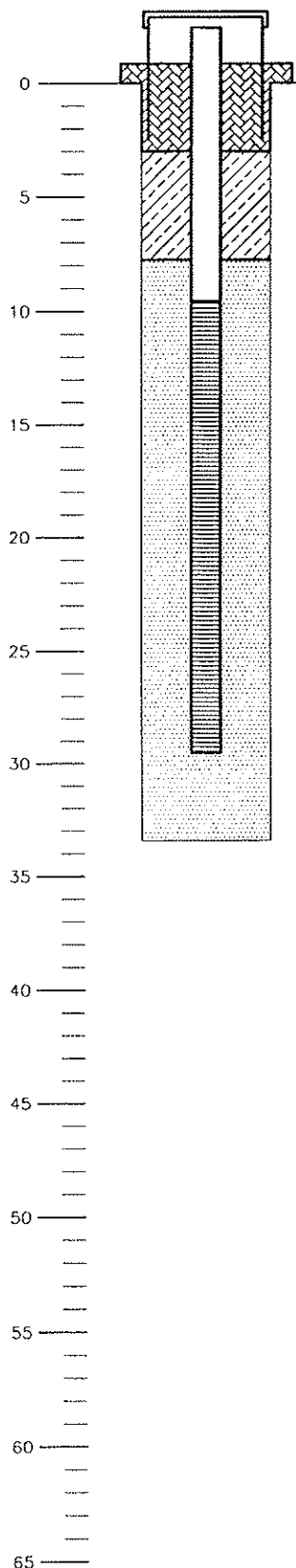
**GeoLogic Associates**  
**MONITORING WELL COMPLETION SUMMARY**

**WELL NO.: GLA-16**

PAGE: 1 OF 1

JOB NO.: 9539  
 PROJECT: DETECTION MONITORING PROGRAM  
 LOCATION: GREGORY CANYON LANDFILL  
 INSPECTOR: W. LOPEZ, CEG  
 CHECKED BY: S. BATTELLE, CHG

ELEVATION GROUND LEVEL: 305.28  
 ELEVATION TOP OF CASING: 307.54  
 DATE STARTED: 12/20/99  
 DATE FINISHED: 12/20/99  
 TOTAL DEPTH: 29.5 feet



**DRILLING SUMMARY:**

Total Depth: 33.5 feet  
 Borehole diameter: 8"

Driller: Water Development Corporation  
 Rig: CME-95  
 Bit(s): Hollow Stem Auger


Drilling Fluid: Air


Protective Casing: Hollow Stem Auger


**WELL CONSTRUCTION LOG:**

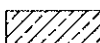
	Start		Finish	
	Date	Time	Date	Time
Drilling:	12/20/99	10:00	12/20/99	10:15
Coring:	-	-	-	-
Casing Install:	12/20/99	10:15	12/20/99	10:30
Filter Placement:	12/20/99	10:30	12/20/99	10:55
Seal Placement: (Bentonite Chips)	12/20/99	10:55	12/20/99	11:05
Seal Placement 2nd: (Grout)	12/20/99	11:15	12/20/99	11:30


**WELL CONSTRUCTION DETAILS:**

 Casing: 2" diameter Sch. 40 PVC with flush threaded joints.  
 (From +2.26 to 9.5 feet.)

 Screen: 2" diameter Sch. 40 PVC with 0.020" slots and flush threaded joints.  
 (From 9.5 to 29.5 feet.)

 Grout Seal: Readi-mix concrete.  
 (From 0 to 3 feet.)

 Bentonite Seal: Medium bentonite chips.  
 (From 3 to 7.8 feet.)

 Filter Pack: #3 Monterey Sand.  
 (From 7.8 to 33.5 feet.)

**WELL DEVELOPMENT LOG:**

	Date	Start Time	Finish Time
Surge Block	12/23/99	11:40	12:10
Air Lift Pumping			
Other - Bailer	12/23/99	12:10	14:00

Total Gallons Removed: 65

**STABILIZATION TEST DATA:**

Gallons	pH	Spec. Cond.	Temp (°F)

Comments:

**WELL MONITORING DATA:**

Date	Time	Reading	Corr.	Depth	SWL	By
12/20/99	11:10			10.6' bgs		WBL

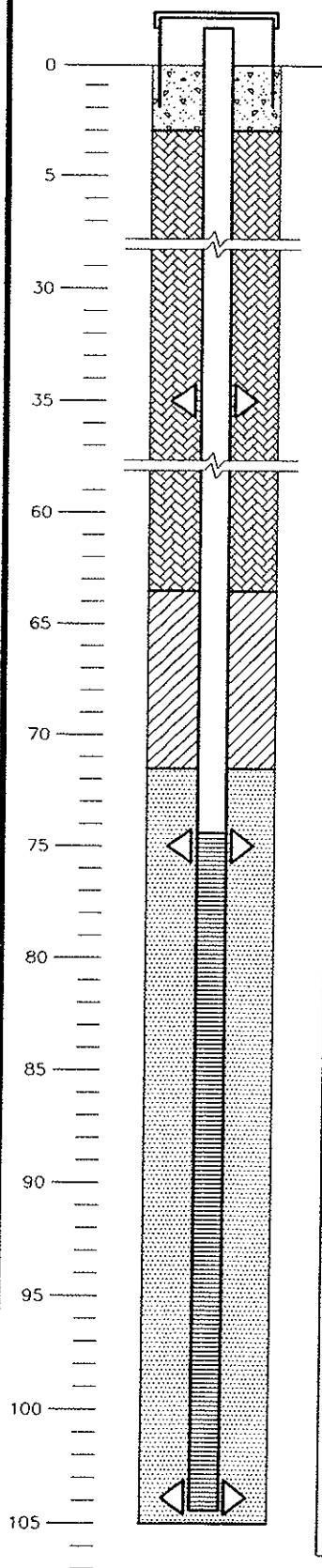
## MONITORING WELL COMPLETION SUMMARY

WELL NO.: GLA-A

PAGE: 1 OF 1

JOB NO.: 9539  
 PROJECT: GREGORY CANYON LANDFILL  
 LOCATION: GREGORY CANYON, PALA, CA  
 INSPECTOR: W. LOPEZ, CHG  
 CHECKED BY: W. LOPEZ, CHG

ELEVATION GROUND LEVEL: 377.49  
 ELEVATION TOP OF CASING: 380.35  
 DATE STARTED: 7/20/04  
 DATE FINISHED: 7/21/04  
 TOTAL DEPTH: 104.4 feet



## DRILLING SUMMARY:

Total Depth: 105 feet  
 Borehole diameter: 8-1/2"  
 Driller: WDC EXPLORATION AND WELLS

Rig: SPEED STAR 30K  
 Bit(s): TRI-CONE / DOWNHOLE HAMMER

Drilling Fluid: AIR

Protective Casing: 9-5/8" diameter steel  
 conductor from 0 to 20'

## WELL CONSTRUCTION DETAILS:

Casing: 4" diameter, flush threaded,  
 Sch. 40 PVC.  
 (From +2.86 to 74.4 feet.)

Screen: 4" diameter, flush threaded,  
 Sch. 40 PVC with 0.020" slots.  
 (From 74.4 to 104.4 feet.)

Filter Pack: #3 Monterey type sand.  
 (From 71.5 to 105 feet.)

Bentonite Seal: Medium chipped bentonite.  
 (From 63.5 to 71.5 feet.)

Grout Seal: Neat cement slurry with 5%  
 bentonite.  
 (From 3 to 63.5 feet.)

Centralizer: Stainless steel.  
 (At 35, 75 and 104 feet.)

Cement: From 0 to 3 feet.

## WELL CONSTRUCTION LOG:

	Date	Start Time	Date	Finish Time
Drilling:	6/08/04	16:50	6/09/04	9:55
Coring:	-	-	-	-
Ream:	-	-	-	-
Geophys. Logging:	6/11/04	7:30	6/11/04	9:15
Casing Install:	6/24/04	10:00	6/24/04	10:10
Filter Placement:	6/24/04	10:15	6/24/04	11:10
Seal Placement: (Bentonite)	6/24/04	11:10	6/24/04	11:20
Seal Placement: (Grout)	6/24/04	12:30	6/24/04	13:10

## WELL DEVELOPMENT LOG:

	Date	Start Time	Finish Time
Surge Block	7/06/04	8:30	8:40
Bailing	7/06/04	8:40	9:00
Pumping	7/06/04	10:25	11:15

Total Gallons Removed: 165

## STABILIZATION TEST DATA:

Gallons	pH	Spec. Cond. (µS/cm)	Temp (°F)

## Comments:

Well was developed by surging, bailing and pumping water until visibly clear, approximately less than 5 NTU.

## WELL MONITORING DATA:

Date	Time	Description	Corr.	Depth (feet)	SWL (feet)	By
6/11/04	7:15	Prior to well construction	-	75.22	302.27	WBL
7/06/04	8:25	Prior to well development	-	75.30	302.19	WBL

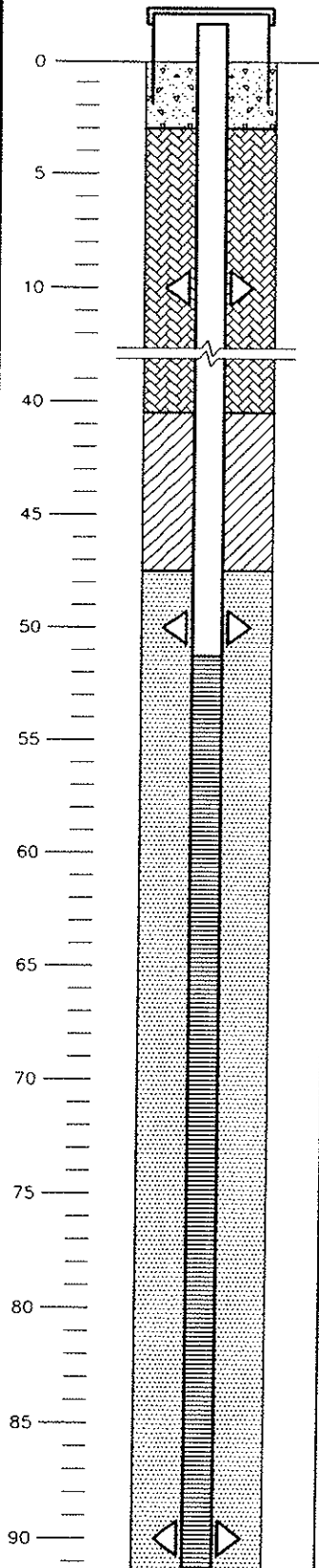
## MONITORING WELL COMPLETION SUMMARY

WELL NO.: GLA-B

PAGE: 1 OF 1

JOB NO.: 9539  
 PROJECT: GREGORY CANYON LANDFILL  
 LOCATION: GREGORY CANYON, PALA, CA  
 INSPECTOR: J. HOWER, CEG  
 CHECKED BY: W. LOPEZ, CHG

ELEVATION GROUND LEVEL: 344.14  
 ELEVATION TOP OF CASING: 347.04  
 DATE STARTED: 6/09/04  
 DATE FINISHED: 6/23/04  
 TOTAL DEPTH: 91.22 feet



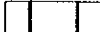
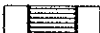
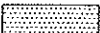
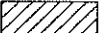


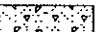
## DRILLING SUMMARY:

Total Depth: 91.5 feet  
 Borehole diameter: 8-1/2"  
 Driller: WDC EXPLORATION AND WELLS  
 Rig: SPEED STAR 30K  
 Bit(s): TRI-CONE / DOWNHOLE HAMMER

Drilling Fluid: AIR

Protective Casing: 9-5/8" diameter steel  
 conductor from 0 to 20'

## WELL CONSTRUCTION DETAILS:

-  Casing: 4" diameter, flush threaded, Sch. 40 PVC.  
 (From +2.9 to 51.22 feet.)
-  Screen: 4" diameter, flush threaded, Sch. 40 PVC with 0.020" slots.  
 (From 51.22 to 91.22 feet.)
-  Filter Pack: #3 Monterey type sand.  
 (From 47.5 to 91.5 feet.)
-  Bentonite Seal: Medium chipped bentonite.  
 Seal: (From 40.5 to 47.5 feet.)
-  Grout Seal: Neat cement slurry with 5% bentonite.  
 (From 3 to 47 feet.)
-  Centralizer: Stainless steel.  
 (At 10, 50 and 90 feet.)
-  Concrete From 0 to 3 feet.

## WELL CONSTRUCTION LOG:

	Start Time		Finish Time	
Date	Date	Time	Date	Time
Drilling:	6/09/04	15:57	6/10/04	10:49
Coring:	-	-	-	-
Ream:	-	-	-	-
Geophys. Logging:	6/11/04	9:30	6/11/04	11:15
Casing Install:	6/21/04	10:20	6/21/04	10:50
Filter Placement:	6/21/04	10:52	6/21/04	11:15
Seal Placement: (Bentonite)	6/21/04	11:27	6/21/04	11:38
Seal Placement: (Grout)	6/23/04	8:30	6/23/04	9:45

## WELL DEVELOPMENT LOG:

	Date	Start Time	Finish Time
Surge Block			
Bailing			
Pumping	6/28/04 6/29/04	15:00	16:00
Total Gallons Removed: 2400			

## STABILIZATION TEST DATA:

Gallons	pH	Spec. Cond. (µs/cm)	Temp (°F)

## Comments:

Well was developed during pump test conducted on 6/28/04 and 6/29/04. Discharge visibly clear, less than 5 NTU.

## WELL MONITORING DATA:

Date	Time	Description	Corr.	Depth (feet)	SWL (feet)	By
6/11/04	8:19	Prior to well construction	-	39.70	304.44	AF
7/06/04	14:30	After well development	-	40.00	304.14	WBL

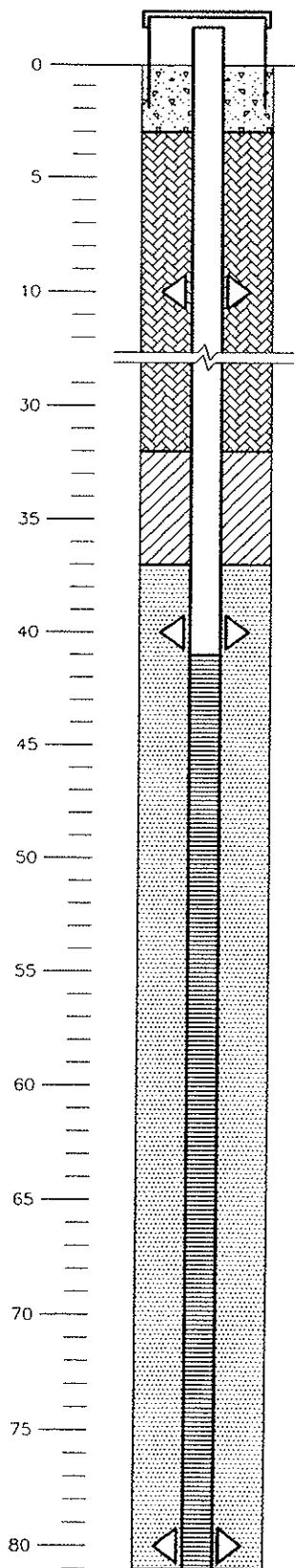
## MONITORING WELL COMPLETION SUMMARY

WELL NO.: GLA-C

PAGE: 1 OF 1

JOB NO.: 9539  
 PROJECT: GREGORY CANYON LANDFILL  
 LOCATION: GREGORY CANYON, PALA, CA  
 INSPECTOR: W. LOPEZ, CHG  
 CHECKED BY: W. LOPEZ, CHG

ELEVATION GROUND LEVEL: 340.76  
 ELEVATION TOP OF CASING: 343.45  
 DATE STARTED: 6/03/04  
 DATE FINISHED: 6/03/04  
 TOTAL DEPTH: 81 feet



## DRILLING SUMMARY:


Total Depth: 81 feet  
 Borehole diameter: 8-1/2"  
 Driller: WDC EXPLORATION AND WELLS

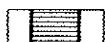
Rig: SPEED STAR 30K  
 Bit(s): TRI-CONE / DOWNHOLE HAMMER


Drilling Fluid: AIR

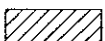
Protective Casing: 9-5/8" diameter steel  
 conductor from 0 to 20'


## WELL CONSTRUCTION DETAILS:


 Casing: 4" diameter, flush threaded,  
 Sch. 40 PVC.  
 (From +2.69 to 41 feet.)

 Screen: 4" diameter, flush threaded,  
 Sch. 40 PVC with 0.020" slots.  
 (From 41 to 81 feet.)

 Filter Pack: #3 Monterey type sand.  
 (From 37 to 81 feet.)

 Bentonite Seal: Medium chipped bentonite.  
 Seal: (From 32 to 37 feet.)

 Grout Seal: Neat cement slurry with 5%  
 bentonite.  
 (From 3 to 32 feet.)

 Centralizer: Stainless steel.  
 (At 10, 40 and 80 feet.)

 Concrete From 0 to 3 feet.

## WELL CONSTRUCTION LOG:

	Start		Finish	
	Date	Time	Date	Time
Drilling:	6/10/04	16:35	6/11/04	9:19
Coring:	-	-	-	-
Ream:	-	-	-	-
Geophys. Logging:	6/18/04	7:30	6/18/04	9:00
Casing Install:	6/21/04	13:05	6/21/04	13:35
Filter Placement:	6/21/04	13:35	6/21/04	14:05
Seal Placement: (Bentonite)	6/21/04	14:08	6/21/04	14:23
Seal Placement: (Grout)	6/23/04	10:15	6/23/04	11:30

## WELL DEVELOPMENT LOG:

	Date	Start Time	Finish Time
Surge Block	7/06/04	14:15	14:28
Bailing	7/06/04	14:28	14:38
Pumping	7/06/04	14:50	PM

Total Gallons Removed: 170

## STABILIZATION TEST DATA:

Gallons	pH	Spec. Cond. (µs/cm)	Temp (°F)

## Comments:

Well was developed by surging, bailing and pumping water until visibly clear, approximately less than 5 NTU.

## WELL MONITORING DATA:

Date	Time	Description	Corr.	Depth (feet)	SWL (feet)	By
6/12/04	15:55	Prior to well construction	-	40.14	303.31	WBL
7/06/04	14:10	Prior to well development	-	37.12	306.33	WBL

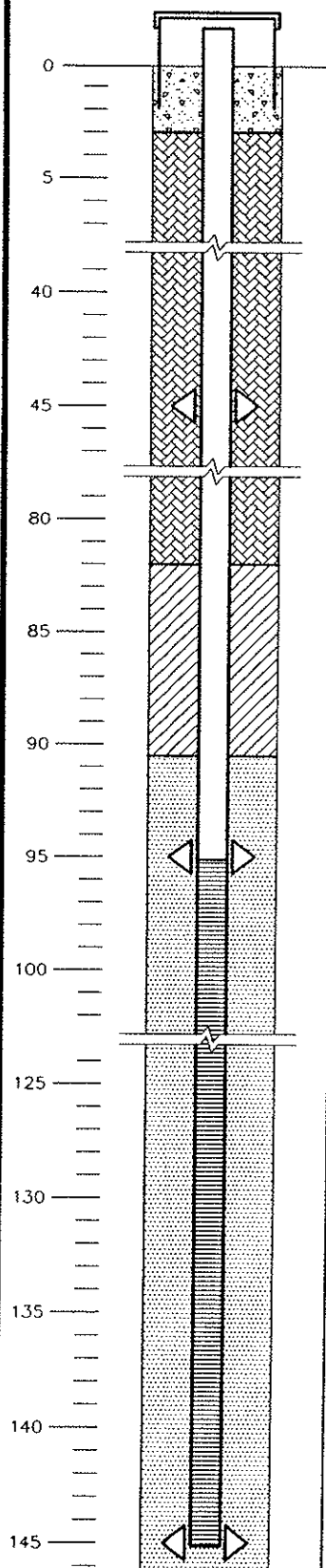
## MONITORING WELL COMPLETION SUMMARY

WELL NO.: GLA-D

PAGE: 1 OF 1

JOB NO.: 9539  
 PROJECT: GREGORY CANYON LANDFILL  
 LOCATION: GREGORY CANYON, PALA, CA  
 INSPECTOR: W. LOPEZ, CHG  
 CHECKED BY: W. LOPEZ, CHG

ELEVATION GROUND LEVEL: 364.77  
 ELEVATION TOP OF CASING: 367.65  
 DATE STARTED: 6/07/04  
 DATE FINISHED: 6/25/04  
 TOTAL DEPTH: 145.1 feet



## DRILLING SUMMARY:


Total Depth: 146.2 feet  
 Borehole diameter: 8-1/2"  
 Driller: WDC EXPLORATION AND WELLS


Rig: SPEED STAR 30K  
 Bit(s): TRI-CONE / DOWNHOLE HAMMER


Drilling Fluid: AIR


Protective Casing: 9-5/8" diameter steel  
 conductor from 0 to 20'


## WELL CONSTRUCTION DETAILS:


 Casing: 4" diameter, flush threaded,  
 Sch. 40 PVC.  
 (From +2.88 to 95.1 feet.)


 Screen: 4" diameter, flush threaded,  
 Sch. 40 PVC with 0.020" slots.  
 (From 95.1 to 145.1 feet.)

 Filter Pack: #3 Monterey type sand.  
 (From 90.5 to 146.2 feet.)

 Bentonite Seal: Medium chipped bentonite.  
 Seal: (From 82 to 90.5 feet.)

 Grout Seal: Neat cement slurry with 5%  
 bentonite.  
 (From 3 to 82 feet.)

 Centralizer: Stainless steel.  
 (At 45, 95 and 145 feet.)

 Cement: From 0 to 3 feet.

## WELL CONSTRUCTION LOG:

	Date	Start Time	Date	Finish Time
Drilling:	6/07/04	14:25	6/08/04	8:55
Coring:	-	-	-	-
Ream:	-	-	-	-
Geophys. Logging:	6/11/04	13:15	6/11/04	15:15
Casing Install:	6/25/04	7:30	6/25/04	7:45
Filter Placement:	6/25/04	8:10	6/25/04	8:45
Seal Placement: (Bentonite)	6/25/04	8:45	6/25/04	8:54
Seal Placement: (Grout)	6/25/04	10:30	6/25/04	11:10

## WELL DEVELOPMENT LOG:

	Date	Start Time	Finish Time
Surge Block	7/06/04	13:15	13:25
Bailing	7/06/04	13:25	13:50
Pumping			

Total Gallons Removed: 90

## STABILIZATION TEST DATA:

Gallons	pH	Spec. Cond. (µs/cm)	Temp (°F)

## Comments:

Well was developed by surging and bailing until dry.

## WELL MONITORING DATA:

Date	Time	Description	Corr.	Depth (feet)	SWL (feet)	By
6/21/04	11:30	Prior to well construction	-	59.50	305.27	WBL
7/06/04	12:15	Prior to well development	-	60.27	304.50	WBL

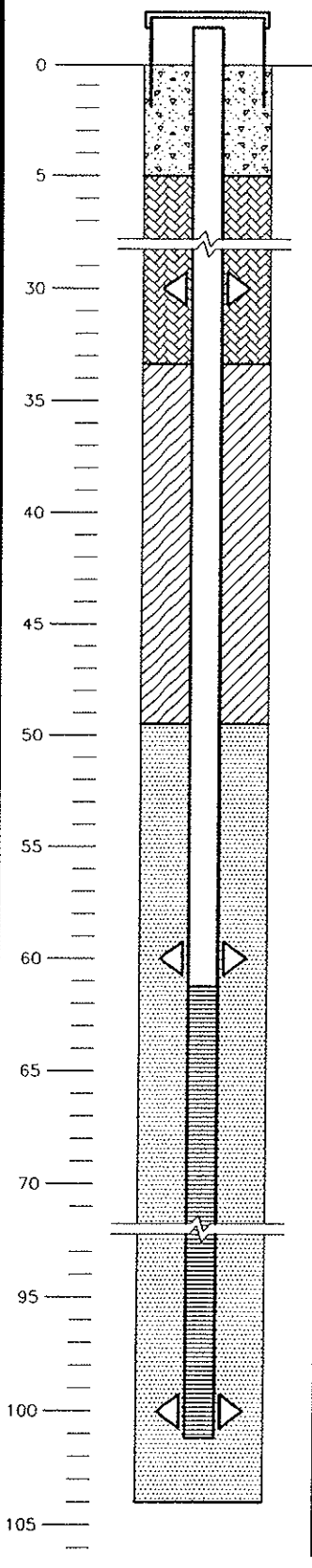
**GeoLogic Associates**  
**MONITORING WELL COMPLETION SUMMARY**

**WELL NO.: GLA-G**

**PAGE: 1 OF 1**

**JOB NO.: 9539**  
**PROJECT: GREGORY CANYON LANDFILL**  
**LOCATION: GREGORY CANYON, PALA, CA**  
**INSPECTOR: W. LOPEZ, CHG**  
**CHECKED BY: W. LOPEZ, CHG**

**ELEVATION GROUND LEVEL: 345.04**  
**ELEVATION TOP OF CASING: 347.58**  
**DATE STARTED: 7/20/04**  
**DATE FINISHED: 7/21/04**  
**TOTAL DEPTH: 101.15 feet**




**DRILLING SUMMARY:**


**Total Depth: 104 feet**  
**Borehole diameter: 8-1/2"**  
**Driller: WDC EXPLORATION AND WELLS**


**Rig: SPEED STAR 30K**  
**Bit(s): TRI-CONE / DOWNHOLE HAMMER**


**Drilling Fluid: AIR**  
**Protective Casing: 9-5/8" diameter steel conductor from 0 to 20'**


**WELL CONSTRUCTION DETAILS:**


 **Casing: 4" diameter, flush threaded, Sch. 40 PVC. (From +2.54 to 61.15 feet.)**


 **Screen: 4" diameter, flush threaded, Sch. 40 PVC with 0.020" slots. (From 61.15 to 101.15 feet.)**

 **Filter Pack: #3 Monterey type sand. (From 49.5 to 104 feet.)**

 **Bentonite Seal: Medium chipped bentonite. (From 33.3 to 49.5 feet.)**

 **Grout Seal: Neat cement slurry with 5% bentonite. (From 5 to 33.3 feet.)**

 **Centralizer: Stainless steel. (At 30, 60 and 100 feet.)**

 **Cement: From 0 to 5 feet.**

**WELL CONSTRUCTION LOG:**

	Date	Start Time	Date	Finish Time
Drilling:	7/20/04	9:40	7/20/04	11:07
Coring:	-	-	-	-
Ream:	-	-	-	-
Geophys. Logging:	7/21/04	7:30	7/21/04	9:15
Casing Install:	7/21/04	10:23	7/21/04	10:45
Filter Placement:	7/21/04	10:47	7/21/04	11:42
Seal Placement: (Bentonite)	7/21/04	12:15	7/21/04	12:30
Seal Placement: (Grout)	7/21/04	15:00	7/21/04	15:30

**WELL DEVELOPMENT LOG:**

	Date	Start Time	Finish Time
Surge Block	7/22/04	10:15	10:25
Bailing	7/22/04	10:25	10:35
Pumping	7/22/04	11:03	17:10

**Total Gallons Removed: 522**

**STABILIZATION TEST DATA:**

Gallons	pH	Spec. Cond. (µs/cm)	Temp (°F)

**Comments:**

Well was developed by surging, bailing and pumping water until visibly clear, approximately less than 5 NTU.

**WELL MONITORING DATA:**

Date	Time	Description	Corr.	Depth (feet)	SWL (feet)	By
7/22/04	10:00	Prior to well development	-	40.18	304.86	WBL

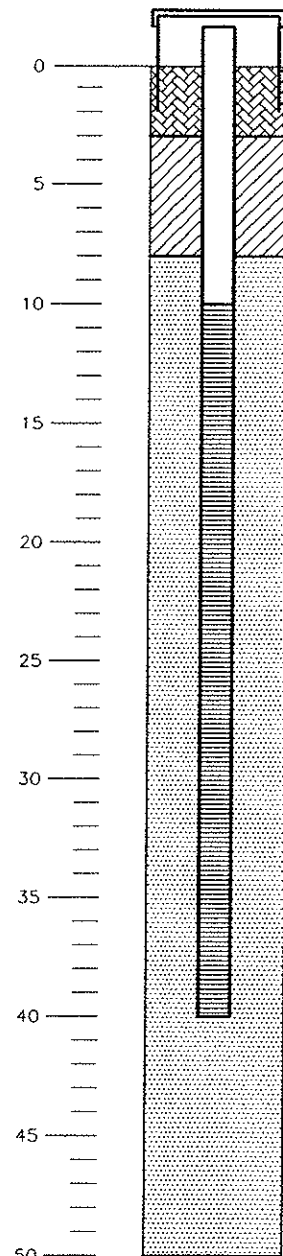
## MONITORING WELL COMPLETION SUMMARY

WELL NO.: LUCIO-2R

PAGE: 1 OF 1

JOB NO.: 9539  
 PROJECT: GREGORY CANYON LANDFILL  
 LOCATION: GREGORY CANYON, PALA, CA  
 INSPECTOR: W. LOPEZ, CHG  
 CHECKED BY: W. LOPEZ, CHG

ELEVATION GROUND LEVEL: ND  
 ELEVATION TOP OF CASING: ND  
 DATE STARTED: 6/03/04  
 DATE FINISHED: 6/03/04  
 TOTAL DEPTH: 40 feet




## DRILLING SUMMARY:


Total Depth: 50 feet  
 Borehole diameter: 8"  
 Driller: WDC EXPLORATION AND WELLS

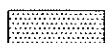
Rig: CME-95  
 Bit(s): BLADE BIT

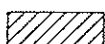
Drilling Fluid: NA  
 Protective Casing: AUGER

## WELL CONSTRUCTION DETAILS:

 Casing: 2" diameter, flush threaded,  
 Sch. 40 PVC.  
 (From +3 to 10 feet.)

 Screen: 2" diameter, flush threaded,  
 Sch. 40 PVC with 0.020" slots.  
 (From 10 to 40 feet.)

 Filter Pack: #3 Monterey type sand.  
 (From 8 to 50 feet.)

 Bentonite Medium chipped bentonite.  
 Seal: (From 3 to 8 feet.)

 Concrete Seal: From 0 to 3 feet.

## WELL CONSTRUCTION LOG:

	Date	Start Time	Date	Finish Time
Drilling:	6/03/04	8:33	6/03/04	9:03
Coring:	-	-	-	-
Ream:	-	-	-	-
Casing Install:	6/03/04	9:08	6/03/04	9:10
Filter Placement:	6/03/04	9:10	6/03/04	10:03
Seal Placement: (Bentonite)	6/03/04	10:03	6/03/04	10:05
Seal Placement: (Concrete)	6/03/04	10:20	6/03/04	10:45

## WELL DEVELOPMENT LOG:

	Date	Start Time	Finish Time
Surge Block	6/08/04	10:00	10:10
Bailing	6/08/04	10:15	10:20
Pumping	6/08/04	10:30	11:00

Total Gallons Removed: 155

## STABILIZATION TEST DATA:

Gallons	pH	Spec. Cond. ( $\mu\text{S}/\text{cm}$ )	Temp ( $^{\circ}\text{F}$ )

## Comments:

Well was developed by surging, bailing and pumping water until visibly clear, approximately less than 5 NTU.

## WELL MONITORING DATA:

Date	Time	Description	Corr.	Depth (feet)	SWL	By
6/03/04	9:10	During well construction	-	12.5	-	WBL
6/08/04	9:30	Prior to well development	-	12.7	-	WBL
6/08/04	11:00	After well development	-	12.7	-	WBL

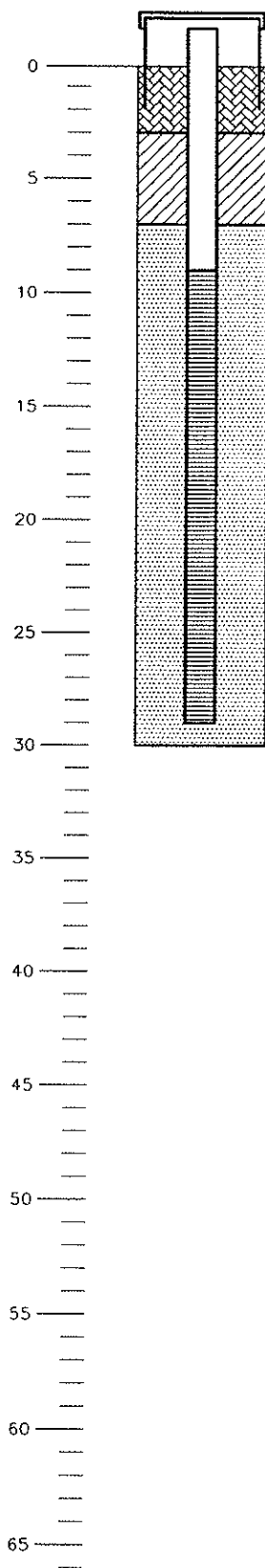
## MONITORING WELL COMPLETION SUMMARY

WELL NO.: SLRMWD-34R

PAGE: 1 OF 1

JOB NO.: 9539  
 PROJECT: GREGORY CANYON LANDFILL  
 LOCATION: GREGORY CANYON, PALA, CA  
 INSPECTOR: W. LOPEZ, CHG  
 CHECKED BY: W. LOPEZ, CHG

ELEVATION GROUND LEVEL: ND  
 ELEVATION TOP OF CASING: ND  
 DATE STARTED: 6/03/04  
 DATE FINISHED: 6/03/04  
 TOTAL DEPTH: 29 feet








## DRILLING SUMMARY:

Total Depth: 30 feet  
 Borehole diameter: 8"  
 Driller: WDC EXPLORATION AND WELLS

Rig: CME-95  
 Bit(s): BLADE BIT

Drilling Fluid: NA  
 Protective Casing: AUGER

## WELL CONSTRUCTION DETAILS:

-  Casing: 2" diameter, flush threaded, Sch. 40 PVC. (From +3 to 9 feet.)
-  Screen: 2" diameter, flush threaded, Sch. 40 PVC with 0.020" slots. (From 9 to 29 feet.)
-  Filter Pack: #3 Monterey type sand. (From 7 to 30 feet.)
-  Bentonite Seal: Medium chipped bentonite. (From 3 to 7 feet.)
-  Cement Seal: From 0 to 3 feet.

## WELL CONSTRUCTION LOG:

	Date	Start Time	Date	Finish Time
Drilling:	6/03/04	12:20	6/03/04	12:40
Coring:	-	-	-	-
Ream:	-	-	-	-
Casing Install:	6/03/04	12:42	6/03/04	12:45
Filter Placement:	6/03/04	12:45	6/03/04	13:08
Seal Placement: (Bentonite)	6/03/04	13:08	6/03/04	13:10
Seal Placement: (Cement)	6/03/04	13:15	6/03/04	13:45

## WELL DEVELOPMENT LOG:

	Date	Start Time	Finish Time
Surge Block	6/08/04	11:45	11:55
Bailing	6/08/04	12:00	12:05
Pumping	6/08/04	12:15	12:45

Total Gallons Removed: 155

## STABILIZATION TEST DATA:

Gallons	pH	Spec. Cond. ( $\mu\text{S}/\text{cm}$ )	Temp ( $^{\circ}\text{F}$ )

## Comments:

Well was developed by surging, bailing and pumping water until visibly clear, approximately less than 5 NTU.

## WELL MONITORING DATA:

Date	Time	Description	Corr.	Depth (feet)	SWL	By
6/03/04	14:00	After well construction	-	12.6	-	WBL
6/08/04	11:25	Prior to well development	-	13.4	-	WBL
6/08/04	13:00	After well development	-	13.4	-	WBL



## BORING LOG

BORING NO.: GLA-1

PAGE: 1 OF 5

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON  
 DRILLING METHOD: DUAL-WALL REVERSE, AIR  
 CONTRACTOR: LAYNE - ENVIRONMENTAL  
 LOGGED BY: T. REEDER

DATE STARTED: 11/19/96  
 DATE FINISHED: 11/20/96  
 ELEVATION: ND  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: 99.5 feet  
 TOTAL DEPTH: 300 feet

TIME START	TIME STOP	RATE, FT/MIN	WATER SAMPLE INTERVAL	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
11/19 10:12						0				RESIDUAL SOIL mixed with decomposed rock. Yellowish brown (10R5/4). Drills as a coarse SAND. Moderately to highly weathered. Dominant lithic fragments are decomposed LEUCOGRANODIORITE with iron oxide staining.	Dry.
						5					
						10				Decomposed GRANODIORITE with quartz. Light brownish gray (2.5Y6/2) to brown (10YR5/3). Oxidized with altered biotite and some pink (7.5YR7/4) potassium-feldspar. Cut by quartz feldspar dikes.	Damp.
						15				BONSALL TONALITE. Gray (2.5Y5/1). Drills as a fine to medium sand with some coarse fragments. Highly to moderately weathered; some iron oxide staining; altered micas.	Damp.
						20				...(20') - slightly less weathered (moderately weathered) and more felsic.	
						25					
						30				...(30') - TONALITE drills as a fine sand with minor coarse sand - fine gravel size fragments. Color changes to gray (2.5Y6/1).	
						35					
						40					
12:14	10:36					45				GRANODIORITE/TONALITE lithic fragments. Slightly weathered and oxidized. Gray (N6); many fragments display foliation; rare pinkish white (5YR8/2) potassium feldspar, probably as dikes.	
		1.17				50				GRANODIORITE. Increase in felsic lithic fragments. Gray (10YR6/4) to light gray (10YR7/1). More quartz and feldspar dikes; foliation is less common. Iron oxide staining on quartz and feldspar.	
						55					
						60				GRANODIORITE/TONALITE. Less felsic fragments. Color change to gray (5Y5/1 to N5); with very minor pinkish white to reddish yellow (5YR8/2 to 7.5YR7/6) potassium feldspar; very minor iron oxide staining.	
12:35	12:31										

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## BORING LOG

BORING NO.: GLA-1

PAGE: 2 OF 5

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON  
 DRILLING METHOD: DUAL-WALL REVERSE, AIR  
 CONTRACTOR: LAYNE - ENVIRONMENTAL  
 LOGGED BY: T. REEDER

DATE STARTED: 11/19/96  
 DATE FINISHED: 11/20/96  
 ELEVATION: ND  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: 99.5 feet  
 TOTAL DEPTH: 300 feet

TIME START	TIME STOP	RATE, FT/MIN	WATER SAMPLE INTERVAL	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
12:35						60				GRANODIORITE/TONALITE. Less felsic fragments. Color change to gray (5Y5/1 to N5); with very minor pinkish white to reddish yellow (5YR8/2 to 7.5YR7/6) potassium feldspar; very minor iron oxide staining.	
						65				TONALITE. Gray (N6). Slightly weathered. Mineralogy is hornblende, pyroxene, feldspar (plagioclase), and minor quartz.	
						70				...(70') - slightly darker; less potassium feldspar.	
12:59	12:57	0.91				75					
						80					...(80') - dry.
						85					
		0.91				90					
						95				...(95') - mixed TONALITE and GRANODIORITE. Darker gray (N5) and light gray (N7) (TONALITE inclusions in GRANODIORITE?).	
13:24	13:21					100					
						105					
		1.05				110				...(110') - less segregated GRANODIORITE/TONALITE.	
						115				...(115') - slightly more felsic lithic fragments. GRANODIORITE/TONALITE with slightly oxidized quartz/feldspar dikes.	
13:46	13:43					120				...(120') - More uniform appearance. Felsic fragments absent - no dikes.	

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## BORING LOG

BORING NO.: GLA-1

PAGE: 3 OF 5

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON  
 DRILLING METHOD: DUAL-WALL REVERSE, AIR  
 CONTRACTOR: LAYNE - ENVIRONMENTAL  
 LOGGED BY: T. REEDER

DATE STARTED: 11/19/96  
 DATE FINISHED: 11/20/96  
 ELEVATION: ND  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: 99.5 feet  
 TOTAL DEPTH: 300 feet

TIME START	TIME STOP	RATE, FT/MIN	WATER SAMPLE INTERVAL	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
13:46						120				...(120') - More uniform appearance. Felsic fragments absent - no dikes.	
						125				...(125') - same as above. GRANODIORITE/TONALITE. Gray (N5). Slight foliation on some fragments.	Dry.
		0.91				130				GRANODIORITE/TONALITE. Gray (N5).	
	14:08					135					
14:12						140					
						145					
						150					
						155					
	14:33	0.95				160				...(160') - slightly more felsic fragments, possibly dikes in the TONALITE.	
14:37						165				...(165') - less felsic fragments; more mafics.	
						170					
						175					
	14:56	1.05				180					
15:25											

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## BORING LOG

BORING NO.: GLA-1

PAGE: 4 OF 5

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON  
 DRILLING METHOD: DUAL-WALL REVERSE, AIR  
 CONTRACTOR: LAYNE - ENVIRONMENTAL  
 LOGGED BY: T. REEDER

DATE STARTED: 11/19/96  
 DATE FINISHED: 11/20/96  
 ELEVATION: ND  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: 99.5 feet  
 TOTAL DEPTH: 300 feet

TIME START	TIME STOP	RATE, FT/MIN	WATER SAMPLE INTERVAL	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
15:25						180					
						185					
						190				...(190') - some very minor iron oxide staining along fractured surfaces.	
						195					
15:50	15:47	0.91				200				GRANODIORITE/TONALITE. Gray (N5). Slightly weathered to fresh.	
						205				...(205') - increase in felsic minerals (quartz and feldspar); probably GRANODIORITE dikes in the TONALITE. White (N8) felsic fragments represent approximately 35-40% of material.	
						210					...(210') - dampness on outside of drill stem.
						215				...(215') - felsic fragments increase to 50%.	
	16:09	1.05				220				LEUCOGRANODIORITE. White (N8 to 10YR8/1) with minor inclusions of TONALITE. Slightly weathered; minor iron oxide staining; with pinkish white (5YR8/2) potassium feldspar.	
16:12						225				GRANODIORITE/TONALITE with felsic dikes. Gray (N5) TONALITE with approximately 30% LEUCOGRANODIORITE dikes.	...(223') - damp.
						230				...(230') - 5% felsic fragments.	
						235				...(235') - felsic fragments increase to 40%. LEUCOGRANODIORITE dikes in TONALITE. Light gray (N6). Slightly oxidized.	
	16:30	1.11				240				...(240') - felsic fragments represent approximately 50% of the material (QUARTZ GRANODIORITE?).	
11/20 7:35											

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## BORING LOG

BORING NO.: GLA-1

PAGE: 5 OF 5

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON  
 DRILLING METHOD: DUAL-WALL REVERSE, AIR  
 CONTRACTOR: LAYNE - ENVIRONMENTAL  
 LOGGED BY: T. REEDER

DATE STARTED: 11/19/96  
 DATE FINISHED: 11/20/96  
 ELEVATION: ND  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: 99.5 feet  
 TOTAL DEPTH: 300 feet

TIME START	TIME STOP	RATE, FT/MIN	WATER SAMPLE INTERVAL	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USGS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
11/20	7:35					240				...(240') - felsic fragments represent approximately 50% of the material (QUARTZ GRANODIORITE?).	
						245				...(245') - felsic fragments less than 5% (GRANODIORITE with 30%+ quartz and feldspar). Light gray (N6); with pink (5Y7/4) potassium feldspar; some epidote and chlorite alteration.	Wet.
	7:41	0.83				250				...(250') - no pink potassium feldspar. Increase in GRANODIORITE/TONALITE fragments foliation.	
						255				...(255') - darker. TONALITE with little felsic fragments. Gray (N5). Very minor quartz/feldspar dikes.	Dry.
	8:08	0.56				260				TONALITE. Dark gray (N5). Hard; minor foliation of mafic minerals.	
						265					...(265') - enough water flowing into the hole to wet sample when adding rod.
	8:17	1.25				270				...(270') - Migmatitic texture on some fragments. GRANODIORITE/TONALITE with minor epidote and chlorite alteration. Slightly more felsic than above.	
						275					
	8:42	0.83				280					
						285				...(285') - white zeolite coating on fracture surface on one lithic fragment. Very minor iron oxide staining on some fragments. Minor chlorite and epidote alteration.	Damp.
						290				...(290') - very minor pinkish white (5Y8/2) potassium feldspar.	
	8:53	0.91				295				...(295') - no visible potassium feldspar (5YR8/2).	
						300				NOTES: 1. Total depth of borehole 300 feet. 2. Conductor casing set to 20 feet. 3. Open hole interval (exposed bedrock) between 20 and 300 feet below ground surface. 4. Groundwater first encountered between 200 and 220 feet. 5. Depth to water on 12/16/96 measured at 37.10 feet.	

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

## BORING LOG

BORING NO.: GLA-2

PAGE: 1 OF 5

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON  
 DRILLING METHOD: DUAL-WALL REVERSE, AIR  
 CONTRACTOR: LAYNE - ENVIRONMENTAL  
 LOGGED BY: T. REEDER

DATE STARTED: 11/18/96  
 DATE FINISHED: 11/19/96  
 ELEVATION: 375 feet  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: 70 feet  
 TOTAL DEPTH: 250 feet

TIME START	TIME STOP	RATE, FT/MIN	WATER SAMPLE INTERVAL	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
11/18 11:20						0			SM	RESIDUAL SOIL. Loose, non-cohesive, with coarse SAND to fine GRAVEL-sized rock fragments. Yellowish-brown (10YR5/4).	Dry.
						5				BONSALL TONALITE. Strongly weathered (probably "C" horizon). Brown (10YR5/3). Drills as a fine silty sand.	Damp.
		0.67				10				...(10') - becomes coarser with fine sand to medium gravel-sized fragments; coarser fragments are dominantly composed of quartz and feldspar (probably derived from a LEUCOGRANODIORITE dike).	
11:42	11:50					15					
						20				...(20') - slightly coarser.	Drier.
						25				GRANODIORITE. Gray (2.5Y5/1) to grayish brown (2.5Y5/2). Drills as a loose fine sand with minor coarse sand-size fragments of quartz and feldspar.	Dry.
						30				LEUCOGRANODIORITE dike (?). Color changes to light gray (2.5Y7/1) to gray (2.5Y6/1). Drills as a very fine sand; minor coarse sand-size fragments; rare gravel-size fragments. Increase in felsic minerals (quartz and feldspar); decrease in mafics.	Dry. Drilling becomes more difficult from this depth on.
12:26	12:05	0.87				35				...(35'-40') - sample consists only of coarse fragments. Pale red (2.5YR7/2).	
						40				...(40') - LEUCOGRANODIORITE dike (?). Gray (2.5Y7/1). Very felsic.	Dry.
13:25	12:48					45				...(45') - GRANODIORITE. Slightly darker, but still gray (2.5Y7/1).	
						50				...(50') - darker gray (2.5Y6/1). Increase in mafics (biotite).	Dry.
						55				...(55') - slightly darker gray (2.5Y6/1 to 2.5Y5/1). Drills as a very fine sand, with minor coarse sand and medium gravel fragments.	
13:40	13:37	1.67				60				...(60') - iron oxide staining on fragments (probably weathered fracture). Gray (7.5YR5/1).	

CONTINUED ON NEXT PAGE

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GW DEPTH: 70 feet  
TOTAL DEPTH: 250 feet

CONTINUED ON NEXT PAGE

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

## BORING LOG

BORING NO.: GLA-2

PAGE: 3 OF 5

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON  
 DRILLING METHOD: DUAL-WALL REVERSE, AIR  
 CONTRACTOR: LAYNE - ENVIRONMENTAL  
 LOGGED BY: T. REEDER

DATE STARTED: 11/18/96  
 DATE FINISHED: 11/19/96  
 ELEVATION: 375 feet  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: 70 feet  
 TOTAL DEPTH: 250 feet

TIME START	TIME STOP	RATE, FT/MIN	WATER SAMPLE INTERVAL	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USGS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
14:44						120				GRANODIORITE. Gray (N5). Slightly weathered.	
						125					
						130				GRANODIORITE with minor quartz feldspar dikes. Gray (N5). Slightly weathered.	
						135				...(135') - lighter color; gray (N6) to light gray (N7). Less mafics; more quartz and feldspar.	
15:02						140					...(140') - damp.
						145					
						150					...(150') - moist.
						155					
15:36	15:25	0.87				160				...(160') - possibly moist; will let hole sit 15 minutes to see if water seeps into the hole.	
						165				...(165') - wet.	
						170				...(170') - drilling dry again; probably very low seepage into hole.	
						175					
16:13	15:59	0.87				180				...(180') - moist; will let hole sit 15 minutes before putting in next stem. Refuel.	

CONTINUED ON NEXT PAGE

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## BORING LOG

BORING NO.: GLA-2

PAGE: 4 OF 5

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON  
 DRILLING METHOD: DUAL-WALL REVERSE, AIR  
 CONTRACTOR: LAYNE - ENVIRONMENTAL  
 LOGGED BY: T. REEDER

DATE STARTED: 11/18/96  
 DATE FINISHED: 11/19/96  
 ELEVATION: 375 feet  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: 70 feet  
 TOTAL DEPTH: 250 feet

TIME START	TIME STOP	RATE, FT/MIN	WATER SAMPLE INTERVAL	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USGS GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
16:13						180				...same as above.	...(180') - moist; will let hole sit 15 minutes before putting in next stem. Refuel. ...(181') - wet. ...(185') - damp.
						185					
						190				TONALITE. Darker gray (N5 to N4), with white (N8) fragments mixed in composed of quartz and feldspar (probably derived from quartz/feldspar dikes in TONALITE).	
11/19						195				TONALITE. Gray (N5) to dark gray (N4), with white (N8) fragments of quartz/feldspar mixed in (<10%) (probably derived from quartz/feldspar dikes in TONALITE).	
6:45						200					
6:54						205					
						210				...(210') - pink (5YR8/3) potassium feldspar fragments present in mix. Increase in felsic fragments up to 15-20% of material (TONALITE with feldspathic dikes). Some chlorite alteration of mafics.	
						215				...(215') - decrease in felsic fragments to approximately 5%. No obvious potassium-feldspar fragments.	
7:24	7:18	0.83				220					...(220') - still drilling damp.
						225					...(223') - very minor water in hole when adding rod.
						230				...(230') - same as above.	Drilling drier to just slightly damp.
						235					...(235') - drilling wet again; driller thinks there is water pressure; material is clogging up cyclone.
8:04	7:50	0.77				240				TONALITE/DIORITE. Mafic fragments are dark gray to very dark gray (N4 to N3) when wet. Less than 3% felsic fragments.	

CONTINUED ON NEXT PAGE

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## BORING LOG

BORING NO.: GLA-2

PAGE: 5 OF 5

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON  
 DRILLING METHOD: DUAL-WALL REVERSE, AIR  
 CONTRACTOR: LAYNE - ENVIRONMENTAL  
 LOGGED BY: T. REEDER

DATE STARTED: 11/18/96  
 DATE FINISHED: 11/19/96  
 ELEVATION: 375 feet  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: 70 feet  
 TOTAL DEPTH: 250 feet

TIME START	TIME STOP	RATE, FT/MIN	WATER SAMPLE INTERVAL	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
8:04						240				TONALITE/DIORITE. Mafic fragments are dark gray to very dark gray (N4 to N3) when wet. Less than 3% felsic fragments.	
	8:19	0.67				245					
						250				...(250') - some epidote alteration of plagioclase; some chlorite alteration of mafics.	
						255				NOTES: 1. Total depth of borehole 250 feet. 2. Conductor casing set to 10 feet. 3. Open hole interval (exposed bedrock) between 10 and 250 feet below ground surface. 4. Groundwater first encountered at 150 feet. 5. Depth to water on 12/16/96 measured at 69.73 feet.	
						260					
						265					
						270					
						275					
						280					
						285					
						290					
						295					
						300					

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

## BORING LOG

BORING NO.: GLA-3

PAGE: 1 OF 3

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON  
 DRILLING METHOD: DUAL-WALL REVERSE, AIR  
 CONTRACTOR: LAYNE - ENVIRONMENTAL  
 LOGGED BY: T. REEDER

DATE STARTED: 11/25/96  
 DATE FINISHED: 11/26/96  
 ELEVATION: 330 feet  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: 21 feet  
 TOTAL DEPTH: 150 feet

TIME START	TIME STOP	RATE, FT/MIN	WATER SAMPLE INTERVAL	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
11/25 12:15						0			SM SP	TOPSOIL/COLLUVIUM: SILTY SAND with GRAVEL; sub-angular clasts of TONALITE and LEUCOGRANODIORITE; loose. Dark grayish brown (10YR4/3).	Moist.
						5			SW	ALLUVIUM: SAND, medium- to coarse-grained, minor fines, with fine- to coarse-grained angular gravel-size fragments of mostly LEUCOGRANODIORITE with some TONALITE. Brown (10YR5/3).	...(5') - damp.
						10				SAND with minor fine- to coarse-grained GRAVEL. Light yellowish brown (2.5Y6/4) to very pale brown (2.5Y7/3).	...(10') - damp.
						15					
						20			SW		
						25	12/16/96				
						30				DECOMPOSED LEUCOGRANODIORITE (GRUSS). Light olive brown (2.5Y5/6), highly weathered; Fe-oxide staining. Drills as a fine- to coarse-grained sand/silty sand; soft, loose.	...(30') - damp.
						35				DECOMPOSED LEUCOGRANODIORITE. Olive (5Y5/3) with Fe-oxide staining. Highly weathered and decomposed.	
						40				DECOMPOSED LEUCOGRANODIORITE. Light olive brown (2.5Y5/4). Drills as fine- to coarse-grained sand with minor gravel. Highly weathered and decomposed.	...(40') - damp.
						45				...(45') - color change to olive brown (2.5Y4/4).	
						50				DECOMPOSED LEUCOGRANODIORITE. Pale brown (10YR6/3) to yellowish brown (10YR5/4). Drills as loose, soft, medium- to coarse-grained sand. Potassium feldspar is reddish yellow (7.5YR6/6-6/8) with Fe-oxide staining.	...(50') - damp.
						55				...(60') - cuttings change in color to pale olive (5Y6/3); larger lithic fragments are gray (10YR6/1) to light brownish gray (10YR6/2); decrease in oxidation staining; color intensity of potassium feldspar decreases to pink (7.5YR8/3) to pinkish gray (7.5YR7/2).	
15:33	12:45	2				60					

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## BORING LOG

BORING NO.: GLA-3

PAGE: 2 OF 3

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON  
 DRILLING METHOD: DUAL-WALL REVERSE, AIR  
 CONTRACTOR: LAYNE - ENVIRONMENTAL  
 LOGGED BY: T. REEDER

DATE STARTED: 11/25/96  
 DATE FINISHED: 11/26/96  
 ELEVATION: 330 feet  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: 21 feet  
 TOTAL DEPTH: 150 feet

TIME START	TIME STOP	RATE, FT/MIN	WATER SAMPLE INTERVAL	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USGS GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
15:33						60				...(60') - cuttings change in color to pale olive (5Y6/3); larger lithic fragments are gray (10YR6/1) to light brownish gray (10YR6/2); decrease in oxidation staining; color intensity of potassium feldspar decreases to pink (7.5YR8/3) to pinkish gray (7.5YR7/2).	
						65				LEUCOGRANODIORITE. Weathered and decomposed. Cuttings are mixed yellow (10YR7/6) and grayish brown (10YR5/2) with minor reddish yellow (7.5YR7/6) potassium feldspar.	...(65') - groundwater first encountered. Moderately wet.
						70				...(70') - cuttings are light olive brown (2.5Y5/4).	...(70') - damp.
						75				...(75') - cuttings are olive brown (2.5Y4/3).	
						80					
						85				...(85') - slightly darker, more mafic.	
						90				GRANODIORITE/TONALITE. Composed mostly of plagioclase, quartz and mafics. Slightly weathered. Dark greenish gray (5B4/1); larger lithic fragments are gray (N5); potassium feldspar is reddish yellow (7.5YR6/6). Less than 3% Fe-oxide staining on some quartz and feldspar dikes.	...(90') - moist.
						95					
16:03	16:01	1.43				100				TONALITE. Relatively unweathered. Gray (N5) with little Fe-oxide staining.	
						105					
						110					
						115					
11/26	16:31	0.71				120				...(120') - minor (less than 5%) potassium feldspar.	

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The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

## BORING LOG

BORING NO.: GLA-3

PAGE: 3 OF 3

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON  
 DRILLING METHOD: DUAL-WALL REVERSE, AIR  
 CONTRACTOR: LAYNE - ENVIRONMENTAL  
 LOGGED BY: T. REEDER

DATE STARTED: 11/25/96  
 DATE FINISHED: 11/26/96  
 ELEVATION: 330 feet  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: 21 feet  
 TOTAL DEPTH: 150 feet

TIME START	TIME STOP	RATE, FT/MIN	WATER SAMPLE INTERVAL	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USGS GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
11/26						120				...(120') - minor (less than 5%) potassium feldspar.	
						125					
						130				TONALITE. Gray (N5). Slightly weathered with less than 1% feldspar. Minor quartz/feldspar dikes.	
						135					
7:25	7:19	1.67				140				...(140') - color change to dark gray (N4).	
						145					
	7:31					150					
						155				Notes: 1. Total depth of borehole 150 feet. 2. Conductor casing set to 45 feet. 3. Open hole interval (exposed bedrock) between 45 and 150 feet below ground surface. 4. Groundwater first encountered at 65 feet. 5. Depth to water on 12/16/96 measured at 23.84 feet.	

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

## BORING LOG

BORING NO.: GLA-4

PAGE: 1 OF 4

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON  
 DRILLING METHOD: DUAL-WALL REVERSE, AIR  
 CONTRACTOR: LAYNE - ENVIRONMENTAL  
 LOGGED BY: T. REEDER / M. VINCENT, CEG

DATE STARTED: 11/26/96  
 DATE FINISHED: 11/27/96  
 ELEVATION: 905 feet  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: 103.2 feet  
 TOTAL DEPTH: 240 feet

TIME START	TIME STOP	RATE, FT/MIN	WATER SAMPLE INTERVAL	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
11/26						0			SM SC	TOPSOIL: SILTY SAND with CLAY to CLAYEY SAND. Reddish brown (5Y3/3) to dark brown (7.5YR3/3), soft, loose. Less than 6" thick.	Moist.
						5			SP	ALLUVIUM: Coarse SAND with fine GRAVEL and angular felsic clasts. Pale yellow (2.5Y7/4) to very pale brown (10YR7/4).	...(0.5') - damp.
						10				TONALITE: Moderately weathered with minor quartz/feldspar dikes.	Damp.
						15				TONALITE with less than 30% of quartz/feldspar dikes. Gray (N5).	
						20				...(20') - increase in felsic cuttings to 50%.	
						25				LEUCOGRANODIORITE DIKE. Yellow (10YR7/6) with Fe-oxide staining. Cuttings are approximately 40% TONALITE and 60% LEUCOGRANODIORITE.	Damp.
						30				LEUCOGRANODIORITE DIKE (30-35%) in TONALITE. Weathered potassium feldspar is pink (5Y7/4). Cuttings are somewhat oxidized.	
						35					
						40				TONALITE. Greenish gray (5GY6/1), phaneritic with fine crystallinity and anhedral to subhedral crystals. Moderately weathered and hydrothermally altered. Hornblende and biotite phenocrysts show moderate chlorite-epidote hydrothermal alteration.	
						45					
						50				...(49') - color change to greenish gray (10BG6/1).	
						55				TONALITE. Bluish gray (10B5/1), phaneritic with fine crystallinity and anhedral to subhedral crystals; biotite- and hornblende-rich. Weak alteration to chlorite-epidote.	
						60				...(61') - slightly higher mafic mineral content than above.	
7:27		~0.7									

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The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

## BORING LOG

BORING NO.: GLA-4

PAGE: 2 OF 4

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON  
 DRILLING METHOD: DUAL-WALL REVERSE, AIR  
 CONTRACTOR: LAYNE - ENVIRONMENTAL  
 LOGGED BY: T. REEDER / M. VINCENT, CEG

DATE STARTED: 11/26/96  
 DATE FINISHED: 11/27/96  
 ELEVATION: 905 feet  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: 103.2 feet  
 TOTAL DEPTH: 240 feet

TIME START	TIME STOP	RATE, FT/MIN	WATER SAMPLE INTERVAL	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USGS GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
7:27						60				...(61') - Slightly higher content of biotite than above. ...(61'-65') - weak limonite staining on fracture surfaces. Slightly more chloritized biotite than above. ...(65') - weak foliation as evidenced by preferred orientation of biotite crystals.	
						65					
						70					...(70') - dry.
						75				...(72') - slightly more felsic than above, with slight increase in crystal size from fine- to medium-crystallinity feldspar and hornblende phenocrysts. ...(75') - same as above.	
7:51		~0.95				80				...(80') - same as above.	Dry.
						85				...(85') - same as above. ...(86'-92') - fracture zone with minor limonite and pyrolusite mineral coatings on fracture surfaces.	
8:03						90					...(90') - dry.
						95				...(94') - aplite dike(s) consisting mostly of potassium feldspar with minor quartz. ...(95'-100') - minor limonite staining visible on fracture surfaces.	
						100				...(100'-105') - no visible oxidation.	Dry.
8:50						105					...(103.2') - groundwater sounded on 12/02/96.
						110				...(110'-115') light bluish gray (5B8/1), feldspar- and quartz-rich felsic dike(s). ...(116'-120') - no visible dikes. ...(120'-137') - abundant fragments of medium- to coarse-grained potassium-feldspar and minor quartz dike(s). Host rock TONALITE shows evidence of moderate chlorite-epidote hydrothermal alteration. Fractures show possible zeolite veining with minor oxidation staining on non-mineral filled fractures. Host rock TONALITE is bluish gray (5PB5/1), aphanitic to phaneritic (very fine- to fine-crystallinity) with abundant biotite and hornblende.	Dry.
9:22						120					Dry.

CONTINUED ON NEXT PAGE

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## BORING LOG

BORING NO.: GLA-4

PAGE: 3 OF 4

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON  
 DRILLING METHOD: DUAL-WALL REVERSE, AIR  
 CONTRACTOR: LAYNE - ENVIRONMENTAL  
 LOGGED BY: T. REEDER / M. VINCENT, CEG

DATE STARTED: 11/26/96  
 DATE FINISHED: 11/27/96  
 ELEVATION: 905 feet  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: 103.2 feet  
 TOTAL DEPTH: 240 feet

TIME START	TIME STOP	RATE, FT/MIN	WATER SAMPLE INTERVAL	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USGS GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
8:08						120				...(120'-137') - abundant fragments of medium- to coarse-grained potassium-feldspar and minor quartz dike(s). Host rock TONALITE shows evidence of moderate chlorite-epidote hydrothermal alteration. Fractures show possible zeolite veining with minor oxidation staining on non-mineral filled fractures. Host rock TONALITE is bluish gray (5PB5/1), aphanitic to phaneritic (very fine- to fine-crystallinity) with abundant biotite and hornblende.	...(120') - dry.
						125					
						130					...(130') - dry.
						135					Moderately hard drilling.
						140					Groundwater sounded at 103.2' below ground surface on 12/02/96 at 6:55.
						145					No free groundwater while drilling or stacking rods.
8:24						150					Hard drilling. No free groundwater while drilling or stacking rods.
						155				...(149.93') - groundwater sounded on 12/16/96.	
8:36						160				...(154') - color change to bluish gray to dark bluish gray (10B4.5/1) with increase in felsic mineral content and increase in crystal size to fine- to medium-crystallinity; anhedral to subhedral feldspar crystals. Cuttings show a weak foliation as evidenced by the segregation of mafic and felsic minerals, and by the preferred orientation of biotite crystals. No visible oxidation of fractures. Rock is unfractured to weakly fractured. No chlorite-epidote alteration visible.	Hard to very hard drilling. No free groundwater encountered.
						165					
						170					Hard to very hard drilling. No free groundwater encountered.
						175				...(175') - same as above.	
9:10						180					Hard to very hard drilling. No free groundwater encountered.

CONTINUED ON NEXT PAGE

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## BORING LOG

BORING NO.: GLA-4

PAGE: 4 OF 4

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON  
 DRILLING METHOD: DUAL-WALL REVERSE, AIR  
 CONTRACTOR: LAYNE - ENVIRONMENTAL  
 LOGGED BY: T. REEDER / M. VINCENT, CEG

DATE STARTED: 11/26/96  
 DATE FINISHED: 11/27/96  
 ELEVATION: 905 feet  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: 103.2 feet  
 TOTAL DEPTH: 240 feet

TIME START	TIME STOP	RATE, FT/MIN	WATER SAMPLE INTERVAL	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
9:10						180					
						185				...(185') - same as above.	
						190				...(190') - better developed foliation with depth. No visible jointing or fracturing.	Hard to very hard drilling. No free groundwater encountered.
						195				...(195'-240') - same as above.	
9:43						200					Hard to very hard drilling. No free groundwater encountered.
						205					
						210					Hard to very hard drilling. No free groundwater encountered.
						215					
10:23						220					Hard to very hard drilling. No free groundwater encountered.
						225					
						230					Hard to very hard drilling. No free groundwater encountered.
						235					
						240					
	11:08									Notes: 1. Total depth of borehole 240 feet. 2. Conductor casing set to 30 feet. 3. Open hole interval (exposed bedrock) between 30 and 240 feet below ground surface. 4. Groundwater first encountered between 103 and 140 feet. 5. Depth to water on 12/16/96 measured at 149.93 feet.	

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

## BORING LOG

BORING NO.: GLA-5

PAGE: 1 OF 4

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON  
 DRILLING METHOD: DUAL-WALL REVERSE, AIR  
 CONTRACTOR: LAYNE - ENVIRONMENTAL  
 LOGGED BY: T. REEDER

DATE STARTED: 11/20/96  
 DATE FINISHED: 11/21/96  
 ELEVATION: 930 feet  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: 41 feet  
 TOTAL DEPTH: 190 feet

TIME START	TIME STOP	RATE, FT/MIN	WATER SAMPLE INTERVAL	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
11/20	11:20					0				COLLUVIUM/RESIDUAL SOIL: SILTY SAND with coarse-grained SAND and fine-grained GRAVEL and minor CLAY; sub-angular sand and gravel size clasts of TONALITE and LEUCOGRANODIORITE. Dark reddish brown (5YR3/3).	Damp.
						5		SM SP			
						10					
						15				WEATHERED TONALITE. Light olive brown (2.5Y5/3). Drills as a medium- to coarse-grained sand. Minor quartz and feldspar dikes.	Damp.
						20					...(20') - damp.
						25				TONALITE. Gray (2.5Y6/1) to light brownish gray (2.5Y6/2). Moderately weathered. Drills as a fine- to coarse-grained sand with minor fine-grained gravel size fragments. Minor quartz/feldspar dikes.	Less damp.
						30					
						35					
						40	11/21/96			TONALITE/QUARTZ DIORITE. Olive (5Y5/3) cuttings, with black (N2.5) and dark gray (N4) lithic fragments. More mafic than above. Drills as a fine-grained sand.	
						45	12/16/96				
						50				...(50'-55') - color change to light brownish gray (2.5Y6/2) to olive gray (5Y6/2).	
						55					
						60				TONALITE. Gray (5Y6/1). Moderately weathered. Less mafic than above.	

CONTINUED ON NEXT PAGE

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

## BORING LOG

BORING NO.: GLA-5

PAGE: 2 OF 4

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON  
 DRILLING METHOD: DUAL-WALL REVERSE, AIR  
 CONTRACTOR: LAYNE - ENVIRONMENTAL  
 LOGGED BY: T. REEDER

DATE STARTED: 11/20/96  
 DATE FINISHED: 11/21/96  
 ELEVATION: 930 feet  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: 41 feet  
 TOTAL DEPTH: 190 feet

TIME START	TIME STOP	RATE, FT/MIN	WATER SAMPLE INTERVAL	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
16:27	16:24					60				TONALITE. Gray (5Y6/1). Moderately weathered. Less mafic than above.	
						65					
						70					
						75				...(75'-80') - slightly more felsic, gray (2.5Y6/1) TONALITE; cuttings are sand-size with quartz/feldspar fragments.	
						80				TONALITE/QUARTZ DIORITE. Gray (N5) lithic fragments. More mafic than above; chlorite alteration of mafics.	
						85				...(85'-90') - felsic cuttings increase to 20% (probably indicates quartz/potassium feldspar dikes in the TONALITE/QUARTZ DIORITE). Felsic fragments have pink (5YR7/4) potassium feldspar. Chlorite alteration of mafics in the TONALITE.	
						90					
						95					...(93'-96') - "soft" drilling.
						100				GRANODIORITE. Bluish gray (5B6/1 to 5/1) with minor reddish yellow (5YR7/6); potassium feldspar and quartz cuttings. GRANODIORITE fragments are chloritized. White coatings on some fractures (zeolite?).	...(100') - moist.
						105				...(100') - decrease in felsic cuttings to less than 10%. Majority of cuttings are of TONALITE with granodiorite dikes; some feldspar and chlorite alteration of mafics; gray (N5).	
11/21						110				TONALITE. Gray (N5). Moderate to slightly weathered and fractured.	...(105') - damp.
						115				...(110') - very minor fragments of quartz/feldspar with minor mafics as veins/dikes in TONALITE.	
	7:35					120					...(120') - water coming up hole.

CONTINUED ON NEXT PAGE

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

## BORING LOG

BORING NO.: GLA-5

PAGE: 3 OF 4

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON  
 DRILLING METHOD: DUAL-WALL REVERSE, AIR  
 CONTRACTOR: LAYNE - ENVIRONMENTAL  
 LOGGED BY: T. REEDER

DATE STARTED: 11/20/96  
 DATE FINISHED: 11/21/96  
 ELEVATION: 930 feet  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: 41 feet  
 TOTAL DEPTH: 190 feet

TIME START	TIME STOP	RATE, FT/MIN	WATER SAMPLE INTERVAL	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
7:35						120					...(120') - water coming up hole.
						125					
						130					
						135				TONALITE. Gray (N5). Slightly weathered; fractured. Chlorite alteration of mafics. Less than 1% quartz/feldspar fragments from dikes, and a few rare fragments of zeolite(?) from fracture infilling; minor iron oxide staining.	
						140					
						145					
						150					
						155					
						160					
						165				...(165') - increase in felsic fragments to 40%.	Sample is wet.
9:08	9:07	0.54				170				...(170') - increase in quartz/feldspar dikes. Decrease in chlorite alteration.	Drier.
						175				...(175') - decrease in felsic fragments to less than 10%.	
9:27	9:23	0.67				180				TONALITE/QUARTZ DIORITE. ...(180') - less than 3% felsic fragments.	
CONTINUED ON NEXT PAGE											

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

## BORING LOG

BORING NO.: GLA-5

PAGE: 4 OF 4

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON  
 DRILLING METHOD: DUAL-WALL REVERSE, AIR  
 CONTRACTOR: LAYNE - ENVIRONMENTAL  
 LOGGED BY: T. REEDER

DATE STARTED: 11/20/96  
 DATE FINISHED: 11/21/96  
 ELEVATION: 930 feet  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: 41 feet  
 TOTAL DEPTH: 190 feet

TIME START	TIME STOP	RATE, FT/MIN	WATER SAMPLE INTERVAL	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
9:27						180				...(180') - less than 3% felsic fragments.	
	9:47	0.50				185					
						190				...(190') - increase in felsic fragments to 10%.	Lost bit downhole.
						195				Notes:	
						200				1. Total depth of borehole 190 feet.	
						205				2. Conductor casing set to 30 feet.	
						210				3. Open hole interval (exposed bedrock) between 30 and 190 feet below ground surface.	
						215				4. Groundwater first encountered at 100 feet.	
						220				5. Depth to water on 12/16/96 measured at 42.57 feet.	
						225					
						230					
						235					
						240					

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

## BORING LOG

BORING NO.: GLA-7

PAGE: 1 OF 3

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON  
 DRILLING METHOD: DUAL-WALL REVERSE, AIR  
 CONTRACTOR: LAYNE - ENVIRONMENTAL  
 LOGGED BY: T. REEDER

DATE STARTED: 11/21/96  
 DATE FINISHED: 11/21/96  
 ELEVATION: 403 feet  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: 50 feet  
 TOTAL DEPTH: 180 feet

TIME START	TIME STOP	RATE, FT/MIN	WATER SAMPLE INTERVAL	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
11/21 13:55						0			SM SW	COLLUVIUM: SILTY SAND, coarse-grained; contains fine gravel fragments. Yellowish brown (10YR5/7).	Damp.
						5			SW	SAND (DG?). Light yellowish brown (2.5YR6/4). May be boulder of decomposed leucogranodiorite.	
						10				DECOMPOSED ROCK (TONALITE?): Olive (5Y5/3). Drills as a fine- to medium-grained sand. Oxidized fragments of brownish yellow (10YR6/8) quartz/potassium feldspar.	...(10') - damp.
						15					
						20				TONALITE/DIORITE. Very dark gray (5Y3/1). Sub-angular to subrounded oxidized fragments.	
						25				TONALITE. Gray (N5). Highly weathered and decomposed. Drills as an olive (5Y5/3), fine- to coarse-grained sand.	...(25') - damp.
						30					
						35					
						40				...(40') - color change to olive gray (5Y5/2 to 4/2).	
						45					
						50				...(50') - groundwater encountered.	
						55					
						60				TONALITE. Olive (5Y4/3). Highly weathered. Drills as a fine- to coarse-grained sand. Large fragments are gray (N5).	...(60') - abundant water coming out of hole on 11/22/96.

CONTINUED ON NEXT PAGE

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

## BORING LOG

BORING NO.: GLA-7

PAGE: 2 OF 3

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON  
 DRILLING METHOD: DUAL-WALL REVERSE, AIR  
 CONTRACTOR: LAYNE - ENVIRONMENTAL  
 LOGGED BY: T. REEDER

DATE STARTED: 11/21/96  
 DATE FINISHED: 11/21/96  
 ELEVATION: 403 feet  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: 50 feet  
 TOTAL DEPTH: 160 feet

TIME START	TIME STOP	RATE, FT/MIN	WATER SAMPLE INTERVAL	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USGS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
8:25						60				TONALITE. Olive (5Y4/3). Highly weathered. Drills as a fine- to coarse-grained sand. Large fragments are gray (N5).	...(60') - abundant water coming out of hole on 11/22/96.
						65				...(65') - moderately weathered TONALITE.	...(65') - damp.
8:35	8:31	1.67				70				...(70') - color change to olive gray (5Y4/2). Lithic fragments are larger and appear less weathered.	...(70') - moist.
						75					
						80					
						85				...(85') - approximately 35% of lithic fragments are of white (N8) quartz/feldspar dikes. TONALITE fragments are very dark gray (N3).	...(85') - moist.
						90					
						95					
8:52	8:50	1.33				100				...(100') - color of cuttings change to dark gray (N4). Lithic fragments of TONALITE are very dark gray (N3); less than 5% felsic fragments. Slight weathering.	...(100') - wet.
						105					
						110					
						115				...(115') - color of cuttings changes to very dark gray (N3). TONALITE fragments are very mafic with dark gray (N4) plagioclase (borderline GABBRO). Slightly weathered. Tonalite fragments are black (N2.5).	
9:24	9:21	0.69				120					...(120') - abundant water in hole.

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The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

## BORING LOG

BORING NO.: GLA-7

PAGE: 3 OF 3

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON  
 DRILLING METHOD: DUAL-WALL REVERSE, AIR  
 CONTRACTOR: LAYNE - ENVIRONMENTAL  
 LOGGED BY: T. REEDER

DATE STARTED: 11/21/96  
 DATE FINISHED: 11/21/96  
 ELEVATION: 403 feet  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: 50 feet  
 TOTAL DEPTH: 160 feet

TIME START	TIME STOP	RATE, FT/MIN	WATER SAMPLE INTERVAL	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USGS GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
9:24						120				...same as above.	...(120') - abundant water in hole.
9:54	9:49	0.80				125					
						130					
						135					
						140				...(140') - increase in felsics to 40% (probably derived from quartz/feldspar dikes in TONALITE).	
						145				GRANODIORITE. Gray (N6) with pale red (2.5YR7/2) orthoclase feldspars. Olive (5Y4/4) chlorite/epidote alteration of some clasts, particularly along fracture surfaces.	
						150				TONALITE. Dark gray (N4) with less than 5% felsic fragments.	
						155					
	10:21	0.74				160				GRANODIORITE. Gray (N6) with only rare pale red (2.5YR7/2) potassium feldspar.	
						165				Notes: 1. Total depth of borehole 160 feet. 2. Conductor casing set to 30 feet. 3. Open hole interval (exposed bedrock) between 30 and 160 feet below ground surface. 4. Groundwater first encountered at 50 feet. 5. Depth to water on 12/16/96 measured at 34.82 feet.	

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.



GW DEPTH: 61 feet  
TOTAL DEPTH: 300 feet

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## BORING LOG

BORING NO.: GLA-8

PAGE: 2 OF 5

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON  
 DRILLING METHOD: DUAL-WALL REVERSE, AIR  
 CONTRACTOR: LAYNE - ENVIRONMENTAL  
 LOGGED BY: M. VINCENT, CEG; T. REEDER

DATE STARTED: 11/24/96  
 DATE FINISHED: 11/25/96  
 ELEVATION: ND  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: 61 feet  
 TOTAL DEPTH: 300 feet

TIME START	TIME STOP	RATE, FT/MIN	WATER SAMPLE INTERVAL	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USGS GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
12:08	12:28					60	11/25/96			...(64') - color change to light yellowish brown (2.5Y6/3.5).	
						65	12/16/96			...(67'-78') - possible weathered joints as evidenced by alternating zones of light yellowish brown (10YR6/4) weathered rock and greenish gray (10BG5/1) unweathered rock. Contains fragments of dark gray (N4) to greenish gray (10BG5/1), micaceous and amphibole-rich TONALITE with fine- to medium-crystallinity phenocrysts of weak red (10R4/3) feldspar.	...(75') - slightly damp.
						70				...(78') - color change to greenish gray (5BG5/1).	
						75				...(81'-86') - TONALITE to GRANODIORITE. Phaneritic with medium crystallinity; subhedral to euhedral, white to light red (2.5YR6.5/8) potassium feldspar phenocrysts. Minor amounts of white to light red (2.5YR6.5/8) 1/32-inch thick mineral vein infilling (zeolite?) on some fracture surfaces. Mineral veins show some reaction with the host rock, as evidenced by epidote alteration envelopes.	...(83') - larger pieces of sample expelled from the cyclone.
						80				...(86') - groundwater encountered in weathered fracture zone. Weathered rock is pale olive (5Y6/3) in color.	...(85') - stop at 12:28 to trip rods out of hole to repair downhole hammer.
						85				...(98') - decrease in amount of weathered fracture zones. Abundant healed fractures showing shear structures in possible hydrothermal (zeolite) mineral veins approximately 1/2-inch thick.	...(86') - groundwater encountered. Mineral vein materials do not appear to react to weak HCl solution.
						90					...(90') - very dry.
						95					
						100					...(100'-105') - somewhat abundant groundwater.
						105					
						110					
						115					
13:26		1.17				120					

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## BORING LOG

BORING NO.: GLA-8

PAGE: 3 OF 5

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON  
 DRILLING METHOD: DUAL-WALL REVERSE, AIR  
 CONTRACTOR: LAYNE - ENVIRONMENTAL  
 LOGGED BY: M. VINCENT, CEG; T. REEDER

DATE STARTED: 11/24/96  
 DATE FINISHED: 11/25/96  
 ELEVATION: ND  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: 61 feet  
 TOTAL DEPTH: 300 feet

TIME START	TIME STOP	RATE, FT/MIN	WATER SAMPLE INTERVAL	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
13:26						120					
						125					
13:38						130				...(128') - increase in mafic minerals with associated color change to brownish gray (10B5/1).	
	13:45					135				...(135'-140') - healed fractures showing shear structures in possible hydrothermal (zeolite) mineral veins approximately 1/2-inch thick. Veins contain 1/32-inch to 1/16-inch diameter TONALITE fragments as inclusions. Vein materials are typically greenish gray (5BG6/1) in color with less than 1/64-inch thick iron-oxide and pyrolusite coatings between the vein material and the host-rock.	...(135') - stop drilling at 13:45 to trip out rods due to blockage in the downhole hammer. Begin drilling with tri-cone bit.
14:25						140				...(143') - abundant olive gray to light red (2.5YR5/8), euhedral feldspar phenocrysts. A weak foliation is evidenced by the partial segregation of mafic and felsic minerals and by the preferred orientation of platy feldspar and biotite phenocrysts. No visible signs of mineral veining on fracture surfaces.	
14:42						145				...(150') - minor occurrence of mineral veining along fracture surfaces, along with non-mineralized fractures.	...(145') - stop drilling at 15:10. Trip out rods and replace tri-cone bit with downhole hammer.
	15:10	0.22				150					
						155					
15:44		1.11				160				...(160') - same as above.	
						165				...(165') - same as above.	
						170				...(169') - decrease in the amount of feldspar phenocrysts with light red (2.5YR5/8) coloration. Most phenocrysts are white.	
16:01		1.43				175				...(172') - increase in amount of mineral veining with associated increase in chloritization. Possible fracture zone.	
						180				...(177') - most feldspar phenocrysts are colored light red (2.5YR5/8).	
16:10										...(180'-185') - decrease in light red colored feldspar phenocrysts and increase in white colored feldspar.	

CONTINUED ON NEXT PAGE

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## BORING LOG

BORING NO.: GLA-8

PAGE: 4 OF 5

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON  
 DRILLING METHOD: DUAL-WALL REVERSE, AIR  
 CONTRACTOR: LAYNE - ENVIRONMENTAL  
 LOGGED BY: M. VINCENT, CEG; T. REEDER

DATE STARTED: 11/24/96  
 DATE FINISHED: 11/25/96  
 ELEVATION: ND  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: 61 feet  
 TOTAL DEPTH: 300 feet

TIME START	TIME STOP	RATE, FT/MIN	WATER SAMPLE INTERVAL	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USGS GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
						180				...(180'-185') - decrease in light red colored feldspar phenocrysts and increase in white colored feldspar.	
						185					
						190				...(190') - same as above.	
						195				...(195') - same as above.	
						200					
						205				TONALITE - dark gray (N4), weathered, with some epidote alteration of feldspar, quartz and granodiorite veins.	...(205') - wet.
						210				CONTACT ZONE: mixed TONALITE and LEUCOGRANODIORITE - mineralogy includes: greenish gray (5G6/1), altered plagioclase; pale red (2.5YR7/2) to light red (2.5YR7/6) orthoclase; white (N8) quartz and plagioclase; dark gray (N4) to dark greenish gray (5GY4/1) mafics (pyroxene, hornblende and biotite). Quartz-filled veins in some of the cuttings.	
						215				...(215') - increase to 80% of cuttings of LEUCOGRANODIORITE with potassium-feldspar and some mafics.	
						220				...(220') - equal proportions in cuttings of greenish gray (5G6/1) TONALITE(?) to pale red (2.5YR7/2) LEUCOGRANODIORITE.	
						225				...(225') - mix of dark gray (N4) TONALITE and light red (2.5YR7/2) LEUCOGRANODIORITE.	
						230				...(230') - approximately 70% greenish gray (5G6/1), altered TONALITE and 30% pale red (2.5YR7/2) GRANODIORITE.	
						235				...(235') - cuttings become darker due to increase in dark gray (N4) mafics.	
						240				...(240') - TONALITE is dark gray (N4) with greenish gray (5G6/1), altered plagioclase and dark gray (N4) mafics. Decrease in potassium-feldspar/LEUCOGRANODIORITE fragments to less than 15%.	
11/25	8:14										

CONTINUED ON NEXT PAGE

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JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON  
 DRILLING METHOD: DUAL-WALL REVERSE, AIR  
 CONTRACTOR: LAYNE - ENVIRONMENTAL  
 LOGGED BY: M. VINCENT, CEG; T. REEDER

DATE STARTED: 11/24/96  
 DATE FINISHED: 11/25/96  
 ELEVATION: ND  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: 61 feet  
 TOTAL DEPTH: 300 feet

TIME START	TIME STOP	RATE, FT/MIN	WATER SAMPLE INTERVAL	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USGS GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
11/25 8:14						240				...(240') - TONALITE is dark gray (N4) with greenish gray (5G6/1), altered plagioclase and dark gray (N4) mafics. Decrease in potassium-feldspar/LEUCOGRANODIORITE fragments to less than 15%.	
						245				...(245') - increase in LEUCOGRANODIORITE fragments to about 30%; color intensifies to light red (2.5Y7/6).	
						250				...(250') - TONALITE color becomes lighter - gray (N5). Less than 5% LEUCOGRANODIORITE fragments.	
						255				...(255') - same as above, with minor greenish gray (5G6/1 to 5GB6/1), altered (chloritized?) plagioclase.	
8:38	8:35	0.95				260				...(260') - approximately 10% LEUCOGRANODIORITE fragments.	
						265				TONALITE/GRANODIORITE - gray (N5) to dark gray (N4), with some greenish gray (5G6/1), altered (chloritized?) plagioclase, and LEUCOGRANODIORITE dikes with less than 2% pale red (2.5YR7/2) to light red (2.5YR7/6) orthoclase.	
						270				...(265') - mix of LEUCOGRANODIORITE and GRANODIORITE cuttings. Some greenish gray (5G6/1) altered plagioclase.	
						275				...(275') - same as above.	
						280				...(280') - orthoclase feldspar/leucogranodiorite fragments decrease to less than 5%.	
8:58	8:54	1.25				285				...(285') - increase in LEUCOGRANODIORITE fragments to approximately 35%.	
						290				...(300') - decrease in orthoclase feldspar to approximately 15%; increase in greenish gray (5G6/1), altered plagioclase.	
						295				NOTES:	
						300				1. Total depth of borehole 300 feet. 2. Conductor casing set to 15 feet. 3. Open hole interval (exposed bedrock) between 15 and 300 feet below ground surface. 4. Groundwater first encountered at 86 feet. 5. Depth to water on 12/16/96 measured at 62.40 feet.	

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## BORING LOG

BORING NO.: GLA-9

PAGE: 1 OF 5

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON  
 DRILLING METHOD: DUAL-WALL REVERSE, AIR  
 CONTRACTOR: LAYNE - ENVIRONMENTAL  
 LOGGED BY: T. REEDER

DATE STARTED: 12/05/96  
 DATE FINISHED: 12/07/96  
 ELEVATION: ND  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: Not encountered  
 TOTAL DEPTH: 300 feet

TIME START	TIME STOP	RATE, FT/MIN	WATER SAMPLE INTERVAL	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
						0				DECOMPOSED TONALITE. Olive gray (5Y4/2). Highly weathered and decomposed. Drills as a fine-grained sand to silty sand with coarse-grained sand to fine-grained gravel size fragments.	Drilling on cut - all topsoil removed. Damp.
						5					
						10				LEUCOGRANODIORITE DIKE. Light yellowish brown (2.5Y6/4) to pale yellow (2.5Y7/4). Highly weathered and decomposed. Fe-oxide staining, and oxidation and chloritization of mafics.	Damp.
						15					
						20					
						25				TONALITE. Dark gray (5Y4/1) to very dark gray (5Y3/1). Moderately weathered. Minor Fe-oxide staining; some chloritization of mafics.	Damp.
						30					
						35				...(35') - quartz veins in TONALITE.	
						40				GRANODIORITE dike in TONALITE (about 60% GRANODIORITE). Light gray (2.5Y7/2) to pale yellow (2.5Y7/3). Oxidized; weathered; some epidote alteration of feldspar and chloritization of mafics.	
14:00						45				DIORITE/TONALITE. Black (N2.5) to very dark gray (N3). Slightly to moderately weathered. Altered biotite on some fragments; minor epidote alteration of some feldspars. Cuttings include fragments of GRANODIORITE; oxidized with some epidote and chlorite alteration.	Damp.
						50				...(50') - very minor quartz/feldspar fragments in cuttings.	
						55				GRANODIORITE dike in TONALITE. White (N8) and black (N2.5) mafics. Approximately 30% GRANODIORITE and 70% TONALITE.	
						60				DIORITE/TONALITE. Very dark gray (N3) to black (N2.5) with GRANODIORITE fragments in cuttings. Slightly weathered to fresh. Zeolite(?) and chlorite as fracture infillings; minor disseminated pyrite in veins and in host rock at contact.	
14:22	14:20	1									

CONTINUED ON NEXT PAGE

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## BORING LOG

BORING NO.: GLA-9

PAGE: 2 OF 5

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON  
 DRILLING METHOD: DUAL-WALL REVERSE, AIR  
 CONTRACTOR: LAYNE - ENVIRONMENTAL  
 LOGGED BY: T. REEDER

DATE STARTED: 12/05/96  
 DATE FINISHED: 12/07/96  
 ELEVATION: ND  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: Not encountered  
 TOTAL DEPTH: 300 feet

TIME START	TIME STOP	RATE, FT/MIN	WATER SAMPLE INTERVAL	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
14:22						60				DIORITE/TONALITE. Very dark gray (N3) to black (N2.5) with GRANODIORITE fragments in cuttings. Slightly weathered to fresh. Zeolite(?) and chlorite as fracture infillings; minor disseminated pyrite in veins and in host rock.	
						65				DIORITE. Very dark gray (N3) to black (N2.5). Slightly weathered to fresh; minor chloritization. No quartz/feldspar fragments.	...(65') - damp to dry. Hard drilling.
14:46	14:43	0.95				70					
						75					
						80					
						85					...(85'-90') - very hard drilling. Broke tooth off bit.
						90					
						95					
15:24	15:19	0.61				100				DIORITE. Very dark gray (N3) to black (N2.5) with minor quartz/feldspar veins with some zeolite(?) alteration/infillings along fractures and chloritization.	
						105					
						110					
						115					
						120					

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## BORING LOG

BORING NO.: GLA-9

PAGE: 2 OF 5

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON  
 DRILLING METHOD: DUAL-WALL REVERSE, AIR  
 CONTRACTOR: LAYNE - ENVIRONMENTAL  
 LOGGED BY: T. REEDER

DATE STARTED: 12/05/96  
 DATE FINISHED: 12/07/96  
 ELEVATION: ND  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: Not encountered  
 TOTAL DEPTH: 300 feet

TIME START	TIME STOP	RATE, FT/MIN	WATER SAMPLE INTERVAL	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
14:22						60				DIORITE/TONALITE. Very dark gray (N3) to black (N2.5) with GRANODIORITE fragments in cuttings. Slightly weathered to fresh. Zeolite(?) and chlorite as fracture infillings; minor disseminated pyrite in veins and in host rock.	
						65				DIORITE. Very dark gray (N3) to black (N2.5). Slightly weathered to fresh; minor chloritization. No quartz/feldspar fragments.	...(65') - damp to dry. Hard drilling.
14:46	14:43	0.95				70					
						75					
						80					
						85					...(85'-90') - very hard drilling. Broke tooth off bit.
						90					
						95					
15:24	15:19	0.61				100				DIORITE. Very dark gray (N3) to black (N2.5) with minor quartz/feldspar veins with some zeolite(?) alteration/infillings along fractures and chloritization.	
						105					
						110					
						115					
						120					

CONTINUED ON NEXT PAGE

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## BORING LOG

BORING NO.: GLA-9

PAGE: 3 OF 5

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON  
 DRILLING METHOD: DUAL-WALL REVERSE, AIR  
 CONTRACTOR: LAYNE - ENVIRONMENTAL  
 LOGGED BY: T. REEDER

DATE STARTED: 12/05/96  
 DATE FINISHED: 12/07/96  
 ELEVATION: ND  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: Not encountered  
 TOTAL DEPTH: 300 feet

TIME START	TIME STOP	RATE, FT/MIN	WATER SAMPLE INTERVAL	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USGS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
16:02	15:58	0.59				120					
						125				...(125') - no apparent quartz/feldspar dikes.	
						130				DIORITE. Very dark gray (N3) to black (N2.5). Fresh; hard. Quartz/feldspar fragments with altered biotite and some epidote alteration of feldspars. Very minor disseminated pyrite.	Rock is fractured, but very hard - breaking buttons off bit. Dry.
						135				...(135') - no apparent quartz/feldspar fragments.	
12/06 8:20						140					
						145					
						150				DIORITE. Very dark gray (N3) to black (N2.5). Fresh; very hard; mostly unaltered. Very minor quartz/feldspar fragments with some chloritized biotite.	
						155					
	8:46	0.77				160					
						165					
						170					
						175				...(175') - DIORITE with GRANODIORITE/TONALITE dikes. Chlorite alteration, especially along contact of dikes with DIORITE.	
9:20						180				Altered GRANODIORITE and quartz/feldspar dikes in TONALITE. Greenish gray (5G5/1). Chloritization of some fractures, and thin coatings of zeolite(?) along some fracture surfaces.	Dry.
CONTINUED ON NEXT PAGE											

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## BORING LOG

BORING NO.: GLA-9

PAGE: 4 OF 5

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON  
 DRILLING METHOD: DUAL-WALL REVERSE, AIR  
 CONTRACTOR: LAYNE - ENVIRONMENTAL  
 LOGGED BY: T. REEDER

DATE STARTED: 12/05/96  
 DATE FINISHED: 12/07/96  
 ELEVATION: ND  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: Not encountered  
 TOTAL DEPTH: 300 feet

TIME START	TIME STOP	RATE, FT/MIN	WATER SAMPLE INTERVAL	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USGS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
9:20						180				Altered GRANODIORITE and quartz/feldspar dikes in TONALITE. Greenish gray (5G5/1). Chloritization of some fractures, and thin coatings of zeolite(?) along some fracture surfaces. ...(185') - TONALITE without felsic fragments.	Dry.
						185					
						190				...(190') - more mafic - DIORITE.	
						195				...(195') - minor quartz/feldspar fragments in cuttings.	
10:22	9:46	0.77				200				...(200') - DIORITE/TONALITE. Dark gray (N4); increase in felsic fragments in cuttings.	Wait 20 minutes for water. No water.
						205					
						210				...(210') - minor quartz/feldspar fragments in cuttings.	
						215				...(215') - some chloritized fragments - look like fracture coatings; very dark gray (N3).	
10:51	10:47	0.80				220				TONALITE/DIORITE. Very dark gray (N3). Hard; fresh. Very minor granodiorite fragments with some disseminated pyrite(?).	
						225				...(225') - some chloritized fragments, dark greenish gray (5G4/1 to 5BG4/1).	
						230				...(230') - DIORITE. Dark gray (N4) to gray (N5). Less mafics.	
						235					
11:20	11:15	0.83				240					

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## BORING LOG

BORING NO.: GLA-9

PAGE: 5 OF 5

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON  
 DRILLING METHOD: DUAL-WALL REVERSE, AIR  
 CONTRACTOR: LAYNE - ENVIRONMENTAL  
 LOGGED BY: T. REEDER

DATE STARTED: 12/05/96  
 DATE FINISHED: 12/07/96  
 ELEVATION: ND  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: Not encountered  
 TOTAL DEPTH: 300 feet

TIME START	TIME STOP	RATE, FT/MIN	WATER SAMPLE INTERVAL	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USGS GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
11:20						240					
						245					
14:27	11:35	0.67				250				...(250') - cuttings are very dark gray (N3) to gray (N4); minor quartz/feldspar fragments.	Changing bit. Fuel up. Let hole sit over one hour - end of sounder is moist, but no free water in hole.
						255				...(255') - DIORITE with no apparent quartz/feldspar dikes. More mafic; darker.	
14:53	14:48	0.48				260					
						265					
						270				...(270') - very minor quartz/feldspar fragments in cuttings.	
						275					
	15:50	0.35				280					Change bit.
12/07 8:30						285				TONALITE. Minor quartz/feldspar dikes with chloritized mafics along contact with TONALITE.	About 0.5" of water at bottom of hole on 12/07 (condensation?).
						290				TONALITE/GABBRO. Very dark gray (N3). Fresh; hard; tight. Minor quartz/feldspar dikes. Minor chloritization of some mafics.	Used up 4 bits (last one only made it 20 feet) - too many carbide fragments in hole. Rubber fitting on bit broke.
						295					
	8:57	0.74				300				NOTES: 1. Total depth of borehole 300 feet. 2. Conductor casing set to 30 feet. 3. Open hole interval (exposed bedrock) between 20 and 300 feet below ground surface. 4. No free groundwater encountered.	

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## BORING LOG

BORING NO.: GLA-10

PAGE: 1 OF 3

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON  
 DRILLING METHOD: DUAL-WALL REVERSE, AIR  
 CONTRACTOR: LAYNE - ENVIRONMENTAL  
 LOGGED BY: M. VINCENT, CEG / T. REEDER

DATE STARTED: 12/03/96  
 DATE FINISHED: 12/05/96  
 ELEVATION: 325 feet  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: 33 feet  
 TOTAL DEPTH: 150 feet

TIME START	TIME STOP	RATE, FT/MIN	WATER SAMPLE INTERVAL	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
12/03 11:57						0				ALLUVIUM: SAND to SILTY SAND - very fine- to medium-grained with minor coarse sand to pebbles, with boulders of granodiorite and lesser amounts of tonalite. SAND is poorly sorted, micaceous and feldspathic. Dark brown (7.5YR3/3.5).	Dry to damp.
						5		SW SM		...	...
						10				...(10'-20') - gradational color change to pinkish gray to brown (7.5YR5/2) with associated decrease in silt and micaceous minerals.	...(10') - dry to damp.
						15					...(15') - dry to damp.
						20					...(17') - groundwater encountered.
						25		SW		GRAVELLY SAND - poorly sorted, medium- to very coarse-grained, arkosic. Abundant subrounded to sub-angular, tonalitic and granodioritic GRAVEL to BOULDERS.	...(25') - stop drilling to repair rig at 12:16. Start drilling again at 12:35.
						30					
						35				WEATHERED BEDROCK - TONALITE: Dark gray (2.5Y4/1) to dark grayish brown (2.5Y4/2). Phaneritic with fine- to medium- crystallinity. Biotite- and hornblende-rich. Weakly weathered with moderate to strong oxidation of biotite and hornblende to chlorite, and with minor alteration of feldspar crystals to clay.	...(33') - wet.
						40					...(40') - wet.
						45				...(45'-50') - predominantly fine- crystallinity.	...(45') - damp.
						50					...(50') - moist to dry. Set conductor casing to 50' below ground surface.
						55				...(53') - color change to olive gray (5Y5/2).	...(55') - dry.
						60					...(60') - dry.

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The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

## BORING LOG

BORING NO.: GLA-10

PAGE: 2 OF 3

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON  
 DRILLING METHOD: DUAL-WALL REVERSE, AIR  
 CONTRACTOR: LAYNE - ENVIRONMENTAL  
 LOGGED BY: M. VINCENT, CEG / T. REEDER

DATE STARTED: 12/03/96  
 DATE FINISHED: 12/05/96  
 ELEVATION: 325 feet  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: 33 feet  
 TOTAL DEPTH: 150 feet

TIME START	TIME STOP	RATE, FT/MIN	WATER SAMPLE INTERVAL	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USGS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
12/05 8:54	13:04					60				...(62') - color change to dark greenish gray (10Y4/1).	...(60') - dry.
						65				...(70') - color change to pale olive to olive (5Y5.5/3).	
						70				...(73') - color change to greenish gray (5GY5.5/1).	
						75				...(77') - color change to gray (N5).	
						80					...(80') - stop drilling to set conductor casing to 50' below ground surface.
						85				TONALITE/DIORITE. Very dark gray (N3). Weathered and moderately decomposed. Fe-oxide stained with altered mica and/or pyrite on oxidized pieces; chloritization of some mafics.	...(87') - water production from borehole while drilling approximately 5-6 gpm.
						90				GRANODIORITE dikes in TONALITE. White (N8). Contains black (N2.5) mafic minerals (biotite, hornblende and pyroxene). Very slight chloritization of some mafics (pyroxene) in very dark gray (N3), weathered and moderately decomposed TONALITE.	...(90') - wet.
9:27	9:25	0.65				95				...(95') - less than 10% GRANODIORITE dike fragments in TONALITE.	
						100				...(100') - 40% GRANODIORITE in TONALITE.	
						105				...(105') - dark gray (N4) mixed TONALITE and GRANODIORITE.	Moist.
						110				Gray (N5 to N6) GRANODIORITE.	
						115				Gray (N5 to N6) GRANODIORITE/TONALITE.	...(115') - wet.
10:05	10:02	0.57				120				...(120') - same as above.	Wet.

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JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON  
 DRILLING METHOD: DUAL-WALL REVERSE, AIR  
 CONTRACTOR: LAYNE - ENVIRONMENTAL  
 LOGGED BY: M. VINCENT, CEG / T. REEDER

DATE STARTED: 12/03/96  
 DATE FINISHED: 12/05/96  
 ELEVATION: 325 feet  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: 33 feet  
 TOTAL DEPTH: 150 feet

TIME START	TIME STOP	RATE, FT/MIN	WATER SAMPLE INTERVAL	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
10:05						120				...(120') - same as above.	Wet.
						125				...(125') - less than 5% orthoclase feldspar.	
						130				...(130') - no potassium-feldspar; less than 5% GRANODIORITE dikes in TONALITE.	
						135				...(135') - increase in GRANODIORITE to approximately 50% of cuttings; moderately weathered, with minor pink potassium-feldspar.	
10:47	10:44	0.51				140				...(140') - moderately weathered TONALITE with GRANODIORITE dikes.	
						145				Gray (N6), moderately weathered TONALITE/GRANODIORITE with some epidote/chlorite alteration.	...(145') - wet.
	11:06	0.53				150				...(150') - less than 1% epidote or zeolite alteration and fracture infillings.	
						155				Notes: 1. Total depth of borehole 150 feet. 2. Conductor casing set to 50 feet. 3. Open hole interval (exposed bedrock) between 50 and 150 feet below ground surface. 4. Groundwater first encountered at 33 feet. 5. Depth to water on 12/16/96 measured at 22.20 feet.	

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# GeoLogic Associates

## Boring Log

BORING NO.: GLA-11

PAGE: 1 OF 5

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON LANDFILL  
 DRILLING METHOD: AIR ROTARY  
 CONTRACTOR: WATER DEVELOPMENT CORPORATION  
 LOGGED BY: W. LOPEZ, CEG

DATE STARTED: 11/30/99  
 DATE FINISHED: 11/30/99  
 ELEVATION: 775.22  
 NORTHING: 2070002.607  
 EASTING: 6300855.954

GW DEPTH: 231 feet  
 TOTAL DEPTH: 243 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
8:20						0		SM/ML		SOIL: Strong brown (7.5YR5/6) SILTY SAND to SANDY SILT with CLAY. SAND is fine- to medium-grained and moderately graded.	Dry.
8:42						5				WEATHERED BEDROCK: Olive gray (5Y5/2), phaneritic, fine-grained, moderately weathered and oxidized HORNFELS.	
8:46						10					
						15					
						20					
						25					
						30				...(28') - color grades to gray 5Y5/1.	
						35					
						40					
8:55						45					
9:03						50				UNWEATHERED BEDROCK: Dark gray (N4), phaneritic, fine-grained, subhedral, hornblend rich HORNFELS.	Dry.

CONTINUED ON NEXT PAGE

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# GeoLogic Associates

## Boring Log

BORING NO.: GLA-11

PAGE: 2 OF 5

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON LANDFILL  
 DRILLING METHOD: AIR ROTARY  
 CONTRACTOR: WATER DEVELOPMENT CORPORATION  
 LOGGED BY: W. LOPEZ, CEG

DATE STARTED: 11/30/99  
 DATE FINISHED: 11/30/99  
 ELEVATION: 775.22  
 NORTHING: 2070002.607  
 EASTING: 6300855.954

GW DEPTH: 231 feet  
 TOTAL DEPTH: 243 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
9:25						50				UNWEATHERED BEDROCK: Dark gray (N4), phaneritic, fine-grained, subhedral, hornblend rich HORNFELS.	Dry.
9:29						55					
						60					
						65					
						70				...(70'-80') - moderately weathered.	
						75					
9:50						80					
9:55						85					
						90					
						95					
						100				Strong brown (7.5YR5/8) to white (7.5YR8/1), phaneritic, fine- to coarse-grained, moderately weathered, subhedral to euhedral GRANODIORITE dikes in HORNFELS with potassium feldspar phenocrysts.	Dry.

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# GeoLogic Associates

## Boring Log

BORING NO.: GLA-11

PAGE: 3 OF 5

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON LANDFILL  
 DRILLING METHOD: AIR ROTARY  
 CONTRACTOR: WATER DEVELOPMENT CORPORATION  
 LOGGED BY: W. LOPEZ, CEG

DATE STARTED: 11/30/99  
 DATE FINISHED: 11/30/99  
 ELEVATION: 775.22  
 NORTHING: 2070002.607  
 EASTING: 6300855.954

GW DEPTH: 231 feet  
 TOTAL DEPTH: 243 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USGS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
10:22						100				Strong brown (7.5YR5/8) to white (7.5YR8/1), phaneritic, fine- to coarse-grained, moderately weathered, subhedral to euhedral GRANODIORITE dikes in HORNFELS with potassium feldspar phenocrysts.	Dry.
10:28						105					
						110				HORNFELS with minor GRANODIORITE dikes.	Dry.
						115					
11:00						120					
11:05						125					
						130					
						135					
						140				...(141'-144') - GRANODIORITE dike.	
11:37						145					
11:45						150				...(150') - predominantly mafic with no dikes.	Dry.

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# GeoLogic Associates

## Boring Log

BORING NO.: GLA-11

PAGE: 4 OF 5

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON LANDFILL  
 DRILLING METHOD: AIR ROTARY  
 CONTRACTOR: WATER DEVELOPMENT CORPORATION  
 LOGGED BY: W. LOPEZ, CEG

DATE STARTED: 11/30/99  
 DATE FINISHED: 11/30/99  
 ELEVATION: 775.22  
 NORTHING: 2070002.607  
 EASTING: 6300855.954

GW DEPTH: 231 feet  
 TOTAL DEPTH: 243 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USGS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
12:22						150				...(150') - predominantly mafic with no dikes.	Dry.
12:26						155					
						160					
						165					
						170					Dry.
						175					
						180					
13:04						185					
13:10						190				...(189'-191') - GRANODIORITE dike.	
						195					
						200					Dry.

CONTINUED ON NEXT PAGE

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# GeoLogic Associates

## Boring Log

BORING NO.: GLA-11

PAGE: 5 OF 5

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON LANDFILL  
 DRILLING METHOD: AIR ROTARY  
 CONTRACTOR: WATER DEVELOPMENT CORPORATION  
 LOGGED BY: W. LOPEZ, CEG

DATE STARTED: 11/30/99  
 DATE FINISHED: 11/30/99  
 ELEVATION: 775.22  
 NORTHING: 2070002.607  
 EASTING: 6300855.954

GW DEPTH: 231 feet  
 TOTAL DEPTH: 243 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USGS GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
13:47						200				...same as above.	Dry.
13:51						205					
						210					
						215					
						220					
14:28						225					Wait 30 minutes. Obstruction encountered at 158'. Tape is wet at 75'. Free groundwater encountered when drilling resumed.
15:03						230					
						235					
						240					Blow out water. Wait 10 minutes; borehole still produces water.
15:27						245				Notes: 1. Total depth of boring 243 feet. 2. Groundwater first encountered at 231 feet. 3. Monitoring well constructed on 12/2/99 (see Monitoring Well Completion Summary).	
						250					

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# GeoLogic Associates

## Boring Log

BORING NO.: GLA-12

PAGE: 1 OF 2

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON LANDFILL  
 DRILLING METHOD: AIR ROTARY  
 CONTRACTOR: WATER DEVELOPMENT CORPORATION  
 LOGGED BY: W. LOPEZ, CEG

DATE STARTED: 11/24/99  
 DATE FINISHED: 11/24/99  
 ELEVATION: 343.91  
 NORTHING: 2070784.338  
 EASTING: 6299410.816

GW DEPTH: 36.7 feet  
 TOTAL DEPTH: 66.0 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USGS GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
8:16						0			SM/ ML	SOIL: Strong brown (7.5YR4/6) SILTY SAND to SANDY SILT with CLAY. SAND is fine-grained and poorly graded.	Dry.
						5				WEATHERED BEDROCK: Strong brown (7.5YR4/4), fine-grained GRANODIORITE (GRUSS) weathered with iron- oxide staining and alteration of feldspar crystals to clay.	Damp.
8:38						10					
8:57						15					
						20				Yellowish brown (10YR5/4) to brownish yellow (10YR6/6), phaneritic, fine- to medium- grained, moderately weathered and oxidized GRANODIORITE.	Damp. Switched from tri-cone bit to downhole hammer. Conductor casing set to 18'.
						25				...(23') - gradational color change to pale yellow (5Y7/3).	
						30				UNWEATHERED BEDROCK: Pale yellow (5Y7/3), phaneritic, fine to coarse subhedral to euhedral GRANODIORITE with white to light red (2.5YR7/6) potassium feldspar phenocrysts.	Moist.
9:30						35					
10:18						40					Wait 45 minutes. Sound for water. Groundwater encountered at 38 feet.
						45					Very moist.
						50				...(48') - color change to light olive brown (2.5Y4/3). ...same as above.	Very moist.

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# GeoLogic Associates

## Boring Log

BORING NO.: GLA-12

PAGE: 2 OF 2

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON LANDFILL  
 DRILLING METHOD: AIR ROTARY  
 CONTRACTOR: WATER DEVELOPMENT CORPORATION  
 LOGGED BY: W. LOPEZ, CEG

DATE STARTED: 11/24/99  
 DATE FINISHED: 11/24/99  
 ELEVATION: 343.91  
 NORTHING: 2070784.338  
 EASTING: 6299410.816

GW DEPTH: 36.7 feet  
 TOTAL DEPTH: 66.0 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
10:38						50				...same as above.	Very moist.
						55					
						60					
						65					Wait 2 hours. Sound for water. Groundwater sounded at 36.7 feet.
						70				Notes: 1. Total depth of boring 66 feet. 2. Groundwater first encountered at 38 feet. Static water level measured at 36.7 feet. 3. Monitoring well constructed on 11/24/99 (see Monitoring Well Completion Summary).	
						75					
						80					
						85					
						90					
						95					
						100					

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# GeoLogic Associates

## Boring Log

BORING NO.: GLA-13

PAGE: 1 OF 2

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON LANDFILL  
 DRILLING METHOD: AIR ROTARY  
 CONTRACTOR: WATER DEVELOPMENT CORPORATION  
 LOGGED BY: W. LOPEZ, CEG

DATE STARTED: 11/22/99  
 DATE FINISHED: 11/23/99  
 ELEVATION: 355.90  
 NORTHING: 2070269.329  
 EASTING: 6298912.906

GW DEPTH: 49.7 feet  
 TOTAL DEPTH: 69.5 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USGS/GEOLGIC FORMATION	DESCRIPTION	COMMENTS
15:00						0			SM/ ML	SOIL: Light yellowish brown (10YR6/4) SILTY SAND to SANDY SILT. SAND is fine-grained and poorly graded.	Dry.
						5				WEATHERED BEDROCK: Strong brown (7.5YR5/8 to 7.5YR4/6), fine- grained TONALITE (GRUSS). Weathered with Fe- oxide staining and alteration of feldspar crystals to clay.	Damp.
15:17						10					
15:26						20					Switched from tri-cone to button bit.
						25				Olive (5Y5/3) to olive gray (5Y5/2), phaneritic, hornblend- and quartz-rich fine- to coarse-grained TONALITE with strong oxidation of hornblend and biotite phenocrysts.	Damp.
						30				...(30') - color grades to gray (5Y6/1).	
						35					
15:43						40					
15:46						45					Damp.
						50				UNWEATHERED BEDROCK: Dark gray (5Y4/1) to white (5Y8/1), phaneritic, fine- to coarse-grained TONALITE to GRANODIORITE with abundant felsic minerals with lesser mafic minerals. Shows minor effects of iron-oxide staining.	Moist.

CONTINUED ON NEXT PAGE

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# GeoLogic Associates

## Boring Log

BORING NO.: GLA-13

PAGE: 2 OF 2

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON LANDFILL  
 DRILLING METHOD: AIR ROTARY  
 CONTRACTOR: WATER DEVELOPMENT CORPORATION  
 LOGGED BY: W. LOPEZ, CEG

DATE STARTED: 11/22/99  
 DATE FINISHED: 11/23/99  
 ELEVATION: 355.90  
 NORTHING: 2070269.329  
 EASTING: 6298912.906

GW DEPTH: 49.7 feet  
 TOTAL DEPTH: 69.5 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
16:04						50				UNWEATHERED BEDROCK: Dark gray (5Y4/1) to white (5Y8/1), phaneritic, fine- to coarse-grained TONALITE to GRANODIORITE with abundant felsic minerals with lesser mafic minerals. Shows minor effects of iron-oxide staining.	Moist.
11/23						55					
7:46						60					Wait 20 minutes. Sound for water. Groundwater encountered at 58 feet and rising.
8:22						65					Very hard drilling. Water enters borehole while drilling.
						70				Notes:  1. Total depth of boring 69.5 feet. 2. Groundwater first encountered at 58 feet. Static water level measured at 49.7 feet. 3. Monitoring well constructed on 11/23/99 (see Monitoring Well Completion Summary).	
						75					
						80					
						85					
						90					
						95					
						100					

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# GeoLogic Associates

## Boring Log

BORING NO.: GLA-14

PAGE: 1 OF 2

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON LANDFILL  
 DRILLING METHOD: AIR ROTARY  
 CONTRACTOR: WATER DEVELOPMENT CORPORATION  
 LOGGED BY: W. LOPEZ, CEG

DATE STARTED: 11/21/99  
 DATE FINISHED: 11/21/99  
 ELEVATION: 332.21  
 NORTHING: 2069847.129  
 EASTING: 6298115.681

GW DEPTH: 36.5 feet  
 TOTAL DEPTH: 63 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USGS GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
7:35						0			SM/ML	SOIL: Dark yellowish brown (10YR4/4) SILTY SAND to SANDY SILT with CLAY. SAND is fine-grained and poorly graded.	Dry.
7:47						5					
7:53						10					
8:08						15				WEATHERED BEDROCK: Strong brown (7.5YR5/8), fine-grained TONALITE (GRUSS) weathered with iron-oxide staining and alteration of feldspar crystals to clay.	Damp.
8:13						20				Light olive gray (5Y6/2) to gray (5Y5/1), phaneritic, fine- to coarse-grained, hornblend and quartz rich TONALITE with oxidation of hornblend and biotite phenocrysts. ...(20'-22') - white (5Y8/1), unweathered GRANODIORITE dike composed of predominantly quartz and feldspar phenocrysts.	Hard drilling.
8:33						25					
8:48						30					
10:30						35					Moist.
15:00						40					
15:45						45					...(42') - groundwater first encountered.
15:20						50				UNWEATHERED BEDROCK: Dark gray (5Y4/1), phaneritic, subhedral, fine-grained, biotite- and hornblend-rich TONALITE.	Groundwater air lifted out of boring while drilling.
15:26											
15:52											

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# GeoLogic Associates

## Boring Log

BORING NO.: GLA-14

PAGE: 2 OF 2

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON LANDFILL  
 DRILLING METHOD: AIR ROTARY  
 CONTRACTOR: WATER DEVELOPMENT CORPORATION  
 LOGGED BY: W. LOPEZ, CEG

DATE STARTED: 11/21/99  
 DATE FINISHED: 11/21/99  
 ELEVATION: 332.21  
 NORTHING: 2069847.129  
 EASTING: 6298115.681

GW DEPTH: 36.5 feet  
 TOTAL DEPTH: 63 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLGIC FORMATION	DESCRIPTION	COMMENTS
15:52						50				UNWEATHERED BEDROCK: Dark gray (5Y4/1), phaneritic, subhedrol, fine-grained, biotite- and hornblend-rich TONALITE.	Groundwater air lifted out of boring while drilling.
						55					
						60					
16:15											
						65				Notes:  1. Total depth of boring 63 feet. 2. Groundwater first encountered at 42 feet. Static water level measured at 36.5 feet. 3. Monitoring well constructed on 11/22/99 (see Monitoring Well Completion Summary).	
						70					
						75					
						80					
						85					
						90					
						95					
						100					

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# GeoLogic Associates

## Boring Log

BORING NO.: GLA-15

PAGE: 1 OF 1

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON LANDFILL  
 DRILLING METHOD: AIR ROTARY  
 CONTRACTOR: WATER DEVELOPMENT CORPORATION  
 LOGGED BY: W. LOPEZ, CEG

DATE STARTED: 11/19/99  
 DATE FINISHED: 11/19/99  
 ELEVATION: 304.82  
 NORTHING: 2068403.283  
 EASTING: 6297080.768

GW DEPTH: 12 feet  
 TOTAL DEPTH: 50 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USGS GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
13:10						0			SM/ ML	ALLUVIUM: Light olive brown (2.5Y5/3) SILTY SAND to SANDY SILT. SAND is very fine-grained, poorly graded and micaceous.	Dry.
13:20						5			SM	Dark grayish brown (2.5Y4/2), poorly graded, fine- with trace of medium-grained, micaceous SILTY SAND.	Moist.
13:34						10					Very moist.
13:47						15				...(15') - SAND grades to fine- to medium- grained.	Slightly wet.
13:53						20					
						25				...(25') - groundwater first encountered.	
						30					Slightly wet.
						35				...(35') - contains trace amounts of coarse- grained SAND and GRAVEL.	Groundwater air lifted out of borehole while drilling.
14:15						40					
16:50						45					
17:10						50				Notes: 1. Total depth of boring 50 feet. 2. Groundwater first encountered at 25 feet. 3. Monitoring well constructed on 11/20/99 (see Monitoring Well Completion Summary).	

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

# GeoLogic Associates

## Boring Log

BORING NO.: GLA-16

PAGE: 1 OF 1

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON LANDFILL  
 DRILLING METHOD: HOLLOW STEM AUGER - 8"  
 CONTRACTOR: WATER DEVELOPMENT CORPORATION  
 LOGGED BY: W. LOPEZ, CEG

DATE STARTED: 12/20/99  
 DATE FINISHED: 12/20/99  
 ELEVATION: 305.28  
 NORTHING: 2068429.193  
 EASTING: 6297089.329

GW DEPTH: 10.6 feet  
 TOTAL DEPTH: 33.5 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USGS GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
10:00						0			SM/ ML	ALLUVIUM: Light olive brown (2.5Y5/3) SILTY SAND to SANDY SILT. SAND is very fine-grained, poorly graded and micaceous.	Dry.
						5			SM	Dark grayish brown (2.5Y4/2), poorly graded, fine- with trace of medium-grained, micaceous SILTY SAND.	Moist.
						10					Slightly wet. ...(10.6') - groundwater first encountered.
10:15						35				Notes: 1. Total depth of boring 33.5 feet. 2. Groundwater first encountered at 10.6 feet. 3. Monitoring well constructed on 12/20/99 (see Monitoring Well Completion Summary).	

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

# GeoLogic Associates

## Boring Log

BORING NO.: GLA-17

PAGE: 1 OF 5

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON LANDFILL  
 DRILLING METHOD: AIR ROTARY  
 CONTRACTOR: WDC EXPLORATION AND WELLS  
 LOGGED BY: A. FYODOROVA

DATE STARTED: 6/16/04  
 DATE FINISHED: 6/18/04  
 ELEVATION: ND  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: NA  
 TOTAL DEPTH: 500 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
8:48						0				WEATHERED BEDROCK: Gray to dark gray (N4-N5), fine, highly weathered, poorly indurated TONALITE. ...(5') - intermittent opalite dikes.	Damp.
8:55						10				...(10') - highly to moderately weathered, moderately indurated.	...(10') - set conductor casing to 10 feet.
9:24						15				...(15'-18') - light yellowish brown (10YR 6/4) GRANODIORITE dike with fine to coarse euhedral crystals.	Damp.
9:31						20				...(22'-23') - brown (7.5YR 5/2), fine to medium GRANODIORITE dike.	Damp.
9:36						30				...(33') - fine to medium with some iron-oxide staining.	
9:47						40					
9:53						50				BEDROCK: Very dark gray (N3), aphanitic to fine, slightly to moderately weathered, well indurated TONALITE with some iron-oxide staining.	...(50') - inject water for dust control.
10:06						60					
10:16						70				...(69') - color change to dark grayish brown (2.5Y 4/2).	
10:24						80					
10:31						90					
10:41						100				...(96') - quartz vein.	
10:50											

CONTINUED ON NEXT PAGE

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

# GeoLogic Associates

## Boring Log

BORING NO.: GLA-17

PAGE: 2 OF 5

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON LANDFILL  
 DRILLING METHOD: AIR ROTARY  
 CONTRACTOR: WDC EXPLORATION AND WELLS  
 LOGGED BY: A. FYODOROVA

DATE STARTED: 6/16/04  
 DATE FINISHED: 6/18/04  
 ELEVATION: ND  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: NA  
 TOTAL DEPTH: 500 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
10:50						100					
						110					
11:09						120				...(119') - fine to medium with some iron-oxide staining, slightly weathered.	
11:17						130				...(125') - color change to pale olive (5Y 6/3); fine to coarse, moderately weathered, some iron-oxide staining.	
11:30						140				...(134') - color change to olive gray (5Y 5/2); thin apalite dike.	
11:35						150				...(150') - fine-grained.	
11:51						160					
12:18						170				...(166') - calcite veins.	
						180				...(170'-173') - pale brown (10YR 6/3) to brown (10YR 5/3), fine to coarse GRANODIORITE dike with some iron-oxide staining.	
12:36						190				...(173') - dark gray (N4) to black (N2.5), aphanitic to fine, very well indurated TONALITE with thin calcite veins.	
12:42						200					...(192'-196') - no cuttings return.
13:13										...(196') - predominately fine euhedral crystals.	
13:20											

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The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

# GeoLogic Associates

## Boring Log

BORING NO.: GLA-17

PAGE: 3 OF 5

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON LANDFILL  
 DRILLING METHOD: AIR ROTARY  
 CONTRACTOR: WDC EXPLORATION AND WELLS  
 LOGGED BY: A. FYODOROVA

DATE STARTED: 6/16/04  
 DATE FINISHED: 6/18/04  
 ELEVATION: ND  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: NA  
 TOTAL DEPTH: 500 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
13:20						200				...same as above.	
						210					
13:53						220					
14:00						230					
						240					
14:34						250					
14:39						260					
						270					
15:13						280					
15:19						290				...(290-300') - predominately aphanitic.	
15:15						300				...(300') - dark gray to gray (N4-N5), fine to medium, very well indurated TONALITE.	
6/17											
7:15											
7:50											
7:54											

CONTINUED ON NEXT PAGE

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

# GeoLogic Associates

## Boring Log

BORING NO.: GLA-17

PAGE: 4 OF 5

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON LANDFILL  
 DRILLING METHOD: AIR ROTARY  
 CONTRACTOR: WDC EXPLORATION AND WELLS  
 LOGGED BY: A. FYODOROVA

DATE STARTED: 6/16/04  
 DATE FINISHED: 6/18/04  
 ELEVATION: ND  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: NA  
 TOTAL DEPTH: 500 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
7:54						300				...(300') - dark gray to gray (N4-N5), fine to medium, very well indurated TONALITE.	
						310					
8:29						320					
8:34						330					
						340					
9:13						350					
9:23						360				...(360') - fine to ophanitic with calcite veins.	
						370					
9:58						380					
10:10						390					
						400					
11:01											
11:12											
11:49											
12:01											

CONTINUED ON NEXT PAGE

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

# GeoLogic Associates

## Boring Log

BORING NO.: GLA-17

PAGE: 5 OF 5

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON LANDFILL  
 DRILLING METHOD: AIR ROTARY  
 CONTRACTOR: WDC EXPLORATION AND WELLS  
 LOGGED BY: A. FYODOROVA

DATE STARTED: 6/16/04  
 DATE FINISHED: 6/18/04  
 ELEVATION: ND  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: NA  
 TOTAL DEPTH: 500 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
12:01						400				...same as above.	
12:18						410					
6/18 7:54											
8:10						420					
8:14											
						430					
9:03											
9:08						440					
						450					
9:41											
9:48						460					
						470					
10:16											
10:21						480					
						490					
11:00						500				Notes: 1. Total depth of boring 500 feet. 2. No groundwater encountered. 3. Borehole geophysics conducted on 6/21/04. 4. Boring abandoned with neat cement grout on 6/22/04.	

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.



# GeoLogic Associates

## Boring Log

BORING NO.: GLA-3S

PAGE: 1 OF 2

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON LANDFILL  
 DRILLING METHOD: AIR ROTARY  
 CONTRACTOR: WDC EXPLORATION AND WELLS  
 LOGGED BY: A. FYODOROVA

DATE STARTED: 6/14/04  
 DATE FINISHED: 6/15/04  
 ELEVATION: ND  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: 24.37 feet  
 TOTAL DEPTH: 80 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USGS GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
8:40						0			SW	YOUNGER ALLUVIUM: Dark brown (10YR 2/2) GRAVELLY SAND with COBBLES and BOULDERS. SAND is fine to medium, well graded; GRAVEL and COBBLES well rounded.	Moist.
						5				...(6') - color change to brown (7.5YR 5/4).	
8:48						10				...(12') - BOULDER.	Refusal on boulder, switch to Stratex.
6/15 8:33						15				...(14') - SAND is fine to coarse with volcanic COBBLES.	
						20				...(17') - increasing GRAVEL, COBBLES, and BOULDERS.	
						25			SM	OLDER ALLUVIUM: Light brown (7.5YR 6/4) SILTY SAND with scattered GRAVEL. SAND is fine to coarse, well graded.	Moist.
						30				...(26') - color change to yellow-brown (7.5YR 4/4).	Very moist
8:52						35				...(31') - increasing GRAVEL and COBBLES cemented with silica, well indurated.	Moist.
						40				WEATHERED BEDROCK: Olive (5Y 5/4), highly weathered with iron-oxide staining and alteration of feldspars to CLAY, medium to coarse GRANODIORITE (GRUSS).	Very moist.
						45				...(41') - color change dark brown (10YR 3/3).	...(37') - set conductor casing.
						50				...(44'-47') - apolite dike, fine to coarse, well indurated.	...(44') - damp.
9:40										...(47') - moderately weathered.	
9:54										...(49') - iron-oxide staining on fractured surfaces.	
10:00										...(51') - apolite vein.	...(52') - wet.
13:29											

CONTINUED ON NEXT PAGE

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

# GeoLogic Associates

## Boring Log

BORING NO.: GLA-3S

PAGE: 2 OF 2

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON LANDFILL  
 DRILLING METHOD: AIR ROTARY  
 CONTRACTOR: WDC EXPLORATION AND WELLS  
 LOGGED BY: A. FYODOROVA

DATE STARTED: 6/14/04  
 DATE FINISHED: 6/15/04  
 ELEVATION: ND  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: 24.37 feet  
 TOTAL DEPTH: 80 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USGS GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
10:00						50				...(51') - apolite vein.	...(52') - wet.
13:29											
13:31											
13:36						55					
13:42										...(58') - increasing mafic minerals.	Saturated.
13:48						60					
						65					
						70					
						75					
14:00						80					
						85				Notes: 1. Total depth of boring 80.0 feet; borehole open to 77.5 feet. 2. Groundwater first encountered at 52.0 feet on 6/15/04; static water level measured at 24.37 feet on 6/17/04. 3. Borehole geophysics performed on 6/18/04. 4. Borehole abandoned with neat cement grout on 6/23/04.	
						90					
						95					
						100					

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

# GeoLogic Associates

## Boring Log

BORING NO.: GLA-A

PAGE: 1 OF 2

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON LANDFILL  
 DRILLING METHOD: AIR ROTARY  
 CONTRACTOR: WDC EXPLORATION AND WELLS  
 LOGGED BY: W. LOPEZ, CHG

DATE STARTED: 6/08/04  
 DATE FINISHED: 6/09/04  
 ELEVATION: 429575.97  
 NORTHING: 1737085.44  
 EASTING: 377.49

GW DEPTH: 75.12 feet  
 TOTAL DEPTH: 105 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USGS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
16:50						0			SM	SOIL: Strong brown (7.5YR 4/6), fine, poorly graded SILTY SAND.	Dry.
						5					
						10				WEATHERED BEDROCK: Olive brown (2.5Y 4/3), fine, highly weathered with iron-oxide staining, poorly indurated TONALITE (GRUSS).	Slightly moist.
						15					
17:00						20				...(18') - color change to dark gray (2.5Y 4/1); moderately to slightly weathered, moderately indurated.	...(16') - set conductor casing, switch to downhole hammer.
6/07 7:15						25				BEDROCK: Black (N2.5), fine to medium, hornblend rich with quartz, moderately indurated TONALITE.	Dry.
7:22						30					
7:32						35				...(30') - color varies from black (N2.5) to dark gray (2.5Y 4/1).	Dry.
						40					
						45					
7:55						50					
8:23						55					
						60					

CONTINUED ON NEXT PAGE

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

# GeoLogic Associates

## Boring Log

BORING NO.: GLA-A

PAGE: 2 OF 2

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON LANDFILL  
 DRILLING METHOD: AIR ROTARY  
 CONTRACTOR: WDC EXPLORATION AND WELLS  
 LOGGED BY: W. LOPEZ, CHG

DATE STARTED: 6/08/04  
 DATE FINISHED: 6/09/04  
 ELEVATION: 429575.97  
 NORTHING: 1737085.44  
 EASTING: 377.49

GW DEPTH: 75.12 feet  
 TOTAL DEPTH: 105 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USGS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
8:42						60				...same as above.	
8:56						65					
						70					
						75					
9:13						80					
9:30						85				...(83'-95') - color predominately dark gray (2.5Y 4/1); increasing quartz and feldspar.	Cuttings moist. ...(85') - first water encountered.
						90					
						95					
						100					
9:55						105					
						110				Notes: 1. Total depth of boring 105 feet. 2. Groundwater first encountered at 85 feet, static water level measured at 75.12 feet on 6/11/04. 3. Borehole geophysics conducted on 6/11/04. 4. Monitoring well constructed in boring (see well completion summary).	
						115					
						120					

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

# GeoLogic Associates

## Boring Log

BORING NO.: GLA-B

PAGE: 1 OF 2

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON LANDFILL  
 DRILLING METHOD: AIR ROTARY  
 CONTRACTOR: WDC EXPLORATION AND WELLS  
 LOGGED BY: W. LOPEZ, CHG/A. FYODOROVA

DATE STARTED: 6/09/04  
 DATE FINISHED: 6/10/04  
 ELEVATION: 430149.38  
 NORTHING: 1737940.66  
 EASTING: 344.14

GW DEPTH: 40.66 feet  
 TOTAL DEPTH: 91.5 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
15:57						0			SM	COLLUVIUM: Dark yellowish brown (10YR 4/4), fine, poorly graded SILTY SAND.	Slightly moist.
16:00						5					
16:25						10				...(10') - grain size increase to fine to coarse with fine GRAVEL; well graded.	Moist.
16:37						15				WEATHERED BEDROCK: Light olive brown (2.5Y 5/4), fine, highly weathered with iron-oxide staining and alteration of feldspars to CLAY, poorly indurated GRANODIORITE (GRUSS).	Moist.
6/10 8:11						20				...(22-25') - color change to strong brown (7.5YR 5/6); grain size increase to fine to coarse.	
8:14						25					
8:26						30					... (26') - set conductor casing.
8:28						35					
8:35						40				...(35') - color change to olive brown (2.5Y 4/3).	Very moist.
8:41						45					
9:21						50					...(42') - sound for water, wet at bottom of boring.
						55					...(52'-60') - very moist.

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The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

# GeoLogic Associates

## Boring Log

BORING NO.: GLA-B

PAGE: 2 OF 2

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON LANDFILL  
 DRILLING METHOD: AIR ROTARY  
 CONTRACTOR: WDC EXPLORATION AND WELLS  
 LOGGED BY: W. LOPEZ, CHG/A. FYODOROVA

DATE STARTED: 6/09/04  
 DATE FINISHED: 6/10/04  
 ELEVATION: 430149.38  
 NORTHING: 1737940.66  
 EASTING: 344.14

GW DEPTH: 40.66 feet  
 TOTAL DEPTH: 91.5 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
9:30						50					...(52'-60') - very moist.
10:12						55					
						60				...(60') - medium to coarse.	
						65				...(65') - fine to medium.	...(62') - sound for water, water measured at 57.75 feet.
						70				...(71') - fine, moderately weathered.	
						75				...(76') - fine to coarse.	Moist.
10:22						80					...(80') - free water.
10:27						85					
10:49						90				UNWEATHERED BEDROCK: Gray (N5-N6), medium to coarse, very well indurated GRANODIORITE/TONALITE with euhedral crystals.	
						95				Notes: 1. Total depth of boring 91.5 feet (refusal with tri-cone bit). 2. Groundwater first encountered at 42 feet on 6/10/04; static water level measured at 40.66 feet on 6/11/04. 3. Borehole geophysics conducted on 6/11/04. 4. Groundwater monitoring well constructed in boring (see well completion summary).	
						100					

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

# GeoLogic Associates

## Boring Log

BORING NO.: GLA-C

PAGE: 1 OF 2

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON LANDFILL  
 DRILLING METHOD: AIR ROTARY  
 CONTRACTOR: WDC EXPLORATION AND WELLS  
 LOGGED BY: A. FYODOROVA

DATE STARTED: 6/10/04  
 DATE FINISHED: 6/11/04  
 ELEVATION: 430101.73  
 NORTHING: 1737809.29  
 EASTING: 340.76

GW DEPTH: 40.14 feet  
 TOTAL DEPTH: 81 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
14:35						0			SM	TOPSOIL: Brown (7.5YR 4/3), fine to coarse, well graded SILTY SAND.	Dry.
						5			SM	COLLUVIUM: Strong brown (7.5YR 5/6), fine to medium, moderately graded SILTY SAND. ...(6') - well indurated.	Damp.
						10				...(10') - GRAVEL and COBBLES predominately apolite and metavolcanics.	
						15				WEATHERED BEDROCK: Strong brown (7.5YR 5/6), fine to coarse, highly weathered with alteration of feldspars to CLAY, poorly indurated GRANODIORITE (GRUSS). ...(17') - pegmatite dike. ...(18'-19') - apolite dike.	Very moist.
16:46						20				...(20') - becomes moderately weathered with slight iron-oxide staining.	
6/11 7:42						25				...(24'-25') - pegmatite dike. ...(26'-27') - diabase/mafic dike, highly weathered to CLAY.	...(26') - very moist. ...(27') - set conductor casing.
8:01						30					
8:07						35				...(33') - color change to dark grayish brown (2.5Y 4/2).	
						40					
						45					
8:14						50					
8:55											...(50') - wait 30 minutes sound for water; water measured at 46.7'.

CONTINUED ON NEXT PAGE

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

# GeoLogic Associates

## Boring Log

BORING NO.: GLA-C

PAGE: 2 OF 2

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON LANDFILL  
 DRILLING METHOD: AIR ROTARY  
 CONTRACTOR: WDC EXPLORATION AND WELLS  
 LOGGED BY: A. FYODOROVA

DATE STARTED: 6/10/04  
 DATE FINISHED: 6/11/04  
 ELEVATION: 430101.73  
 NORTHING: 1737809.29  
 EASTING: 340.76

GW DEPTH: 40.14 feet  
 TOTAL DEPTH: 81 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
8:55						50					...(50') - wait 30 minutes sound for water; water measured at 46.7'.
						55				...(55'-56') - color change to olive brown (2.5Y 4/3).	
9:02						60					
9:08						65					...(63'-67') - no cuttings return.
						70				...(67') - slightly to moderately weathered.	Moist.
						75				...(75') - slightly weathered.	
						80					...(72') - very moist.
9:19						85					...(77') - wet.
						90				Notes:	
						95				1. Total depth of boring 81.0 feet; borehole open to 77.5 feet.	
						100				2. Groundwater first encountered at 46.7 feet; static water level measured at 40.14 feet on 6/11/04.	
										3. Borehole geophysics conducted on 6/18/04.	
										4. Groundwater monitoring well constructed in boring (see well completion summary).	

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.



# GeoLogic Associates

## Boring Log

BORING NO.: GLA-D

PAGE: 1 OF 3

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON LANDFILL  
 DRILLING METHOD: AIR ROTARY  
 CONTRACTOR: WDC EXPLORATION AND WELLS  
 LOGGED BY: W. LOPEZ, CHG

DATE STARTED: 6/07/04  
 DATE FINISHED: 6/08/04  
 ELEVATION: 429775.68  
 NORTHING: 1737341.82  
 EASTING: 364.77

GW DEPTH: 59.5 feet  
 TOTAL DEPTH: 146.2 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLGIC FORMATION	DESCRIPTION	COMMENTS
14:25						0			SC	SOIL: Dark reddish brown (5YR 3/3), fine, poorly graded CLAYEY SAND.	Moist.
						5				WEATHERED BEDROCK: Olive brown (2.5Y 4/3) to brown (10YR 4/3), fine, highly weathered with iron-oxide staining, poorly indurated TONALITE (GRUSS) with GRANODIORITE dikes composed of quartz and feldspar phenocrysts.	Slightly moist.
14:32						10					
15:00						15				...(15') - fine to medium; increasing felsic minerals.	
15:12						20					...(18') - set conductor casing.
15:18						25				...(22') - moderately weathered with some highly weathered intervals.	
						30				BEDROCK: Brown (10YR 4/3) to black (N2.5), fine to medium, hornblend and quartz rich, moderately indurated TONALITE.	Dry.
15:30						35					
16:02						40					Switch to downhole hammer.
16:09						45					
16:15						50				...(50') - color change to black (N2.5).	
						55					
						60					...(60') - dry.

CONTINUED ON NEXT PAGE

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

# GeoLogic Associates

## Boring Log

BORING NO.: GLA-D

PAGE: 2 OF 3

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON LANDFILL  
 DRILLING METHOD: AIR ROTARY  
 CONTRACTOR: WDC EXPLORATION AND WELLS  
 LOGGED BY: W. LOPEZ, CHG

DATE STARTED: 6/07/04  
 DATE FINISHED: 6/08/04  
 ELEVATION: 429775.68  
 NORTHING: 1737341.82  
 EASTING: 364.77

GW DEPTH: 59.5 feet  
 TOTAL DEPTH: 146.2 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
16:30						60				...same as above.	...(60') - dry.
16:35						65					
						70					
						75					
16:55						80					
17:05						85					
						90					
						95					
						100				...(100-110') - very well indurated.	...(98') - very moist to slightly wet cuttings.
17:50						105					
6/08						110					
7:25						115					
						120					

CONTINUED ON NEXT PAGE

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# GeoLogic Associates

## Boring Log

BORING NO.: GLA-D

PAGE: 3 OF 3

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON LANDFILL  
 DRILLING METHOD: AIR ROTARY  
 CONTRACTOR: WDC EXPLORATION AND WELLS  
 LOGGED BY: W. LOPEZ, CHG

DATE STARTED: 6/07/04  
 DATE FINISHED: 6/08/04  
 ELEVATION: 429775.68  
 NORTHING: 1737341.82  
 EASTING: 364.77

GW DEPTH: 59.5 feet  
 TOTAL DEPTH: 146.2 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
8:08						120				...same as above.	
8:18						125					
						130					...(130') - cuttings are damp.
						135					
						140					
8:55						145					...(142') - very moist.
						150				Notes:	
						155				1. Total depth of boring 146.2 feet.	
						160				2. Groundwater first encountered at 105.6 feet on 6/7/04, static water level measured at 59.5 feet on 6/21/04.	
						165				3. Borehole geophysics conducted on 6/11/04.	
						170				4. Monitoring well constructed in boring (see well completion summary).	
						175					
						180					

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# GeoLogic Associates

## Boring Log

BORING NO.: GLA-E

PAGE: 1 OF 3

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON LANDFILL  
 DRILLING METHOD: AIR ROTARY  
 CONTRACTOR: WDC EXPLORATION AND WELLS  
 LOGGED BY: W. LOPEZ, CHG

DATE STARTED: 7/14/04  
 DATE FINISHED: 7/15/04  
 ELEVATION: ND  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: 152.80 feet  
 TOTAL DEPTH: 152.85 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLGIC FORMATION	DESCRIPTION	COMMENTS
16:58						0			SM	SOIL: Brown (7.5YR 5/4), fine to medium, poorly graded SILTY SAND.	Dry.
						5				WEATHERED BEDROCK: Brown (7.5YR 5/4) to strong brown (7.5YR 5/6), fine to medium, moderately weathered, moderately indurated TONALITE (GRUSS) with GRANODIORITE dikes.	Dry.
						10				BEDROCK: Olive brown (2.5Y 5/4), fine to coarse, well indurated, unweathered TONALITE. ...(13') - color change to dark gray (7.5YR 4/1) to (5Y 4/1).	Dry.
17:30						15					...(16') - set conductor casing, switch to downhole hammer.
6/15						20					
8:10						25					...(25') - slightly moist.
8:13						30					
8:25						35					
						40					
8:33						45					...(45') - dry.
8:39						50					
						55					
8:49						60					
8:51											

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# GeoLogic Associates

## Boring Log

BORING NO.: GLA-E

PAGE: 2 OF 3

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON LANDFILL  
 DRILLING METHOD: AIR ROTARY  
 CONTRACTOR: WDC EXPLORATION AND WELLS  
 LOGGED BY: W. LOPEZ, CHG

DATE STARTED: 7/14/04  
 DATE FINISHED: 7/15/04  
 ELEVATION: ND  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: 152.80 feet  
 TOTAL DEPTH: 152.85 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
8:51						60				...same as above.	
8:53						65				...(65') - minor iron-oxide staining.	Dry.
9:10						70					
						75					
9:20						80				...(80') - color change to gray (N5-N6); very well indurated.	Dry.
9:27						85					
						90					
						95					
9:44						100					...(100') - dry.
9:50						105					
						110					
						115					
10:10						120					...(120') - dry.
10:28											

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# GeoLogic Associates

## Boring Log

BORING NO.: GLA-E

PAGE: 3 OF 3

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON LANDFILL  
 DRILLING METHOD: AIR ROTARY  
 CONTRACTOR: WDC EXPLORATION AND WELLS  
 LOGGED BY: W. LOPEZ, CHG

DATE STARTED: 7/14/04  
 DATE FINISHED: 7/15/04  
 ELEVATION: ND  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: 152.80 feet  
 TOTAL DEPTH: 152.85 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
10:28						120				...same as above.	...(120') - dry.
10:52						125					
11:03						130					
						135					
						140				...(142') - well indurated.	...(140') - dry.
						145					
						150					
11:15						155				Notes:	Stop for 2 hours, sound for water, wet at bottom of boring.
						160				1. Total depth of boring 152.85 feet.	
						165				2. Groundwater first encountered at 152.8'.	
						170				3. Borehole geophysics conducted on 7/20/04.	
						175					
						180					

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# GeoLogic Associates

## Boring Log

BORING NO.: GLA-F

PAGE: 1 OF 3

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON LANDFILL  
 DRILLING METHOD: AIR ROTARY  
 CONTRACTOR: WDC EXPLORATION AND WELLS  
 LOGGED BY: W. LOPEZ, CHG

DATE STARTED: 7/16/04  
 DATE FINISHED: 7/16/04  
 ELEVATION: ND  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: 164.8 feet  
 TOTAL DEPTH: 165.5 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USGS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
7:30						0		SM		SOIL: Strong brown (7.5YR 5/6), fine to medium, poorly graded SILTY SAND.	Dry.
						5				WEATHERED BEDROCK: Dark brown (7.5YR 3/4), fine to medium, highly weathered with iron-oxide staining and alteration of feldspars to CLAY, poorly indurated TONALITE (GRUSS).	Moist.
						10				Olive brown (2.5Y 4/3), fine to medium, moderately weathered, poorly to moderately indurated TONALITE.	Moist.
						15					
						20					...(17') - set conductor casing, switch to downhole hammer.
						25					...(20') - dry.
8:05						30				BEDROCK: Gray (2.5Y 4/1), fine to medium, unweathered, well indurated TONALITE.	Dry.
8:13						35					
						40					
						45					
8:20						50				...(45') - very well indurated.	
8:26						55					
						60					

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# GeoLogic Associates

## Boring Log

BORING NO.: GLA-F

PAGE: 2 OF 3

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON LANDFILL  
 DRILLING METHOD: AIR ROTARY  
 CONTRACTOR: WDC EXPLORATION AND WELLS  
 LOGGED BY: W. LOPEZ, CHG

DATE STARTED: 7/16/04  
 DATE FINISHED: 7/16/04  
 ELEVATION: ND  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: 164.8 feet  
 TOTAL DEPTH: 165.5 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
						60				...same as above.	
8:40						65					
8:48						70					
						75					...(75') - dry.
						80					
9:03						85					...(83') - dry.
9:09						90					
						95					
						100					
						105					...(103') - dry.
9:25						110					
9:35						115					
						120					

CONTINUED ON NEXT PAGE

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# GeoLogic Associates

## Boring Log

BORING NO.: GLA-F

PAGE: 3 OF 3

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON LANDFILL  
 DRILLING METHOD: AIR ROTARY  
 CONTRACTOR: WDC EXPLORATION AND WELLS  
 LOGGED BY: W. LOPEZ, CHG

DATE STARTED: 7/16/04  
 DATE FINISHED: 7/16/04  
 ELEVATION: ND  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: 164.8 feet  
 TOTAL DEPTH: 165.5 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
9:55						120				...same as above.	...(123') - dry.
10:02						125					
						130					
						135					
						140					
10:24						145					
10:30						150					...(146') - very moist.
						155					
						160					
10:45						165					
						170				Notes: 1. Total depth of boring 165.5 feet. 2. Groundwater first encountered at 164.8'. 3. Borehole geophysics conducted on 7/20/04.	
						175					
						180					

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

# GeoLogic Associates

## Boring Log

BORING NO.: GLA-G

PAGE: 1 OF 2

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON LANDFILL  
 DRILLING METHOD: AIR ROTARY  
 CONTRACTOR: WDC EXPLORATION AND WELLS  
 LOGGED BY: W. LOPEZ, CHG

DATE STARTED: 7/20/04  
 DATE FINISHED: 7/20/04  
 ELEVATION: 430247.55  
 NORTHING: 1737961.72  
 EASTING: 345.04

GW DEPTH: 40.18 feet  
 TOTAL DEPTH: 104 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USGS GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
9:40						0			SM	COLLUVIUM: Strong brown (7.5YR 4/6), fine to coarse, well graded SILTY SAND with iron-oxide staining.	Dry.
						5					
						10				...(8') - color change to brown (7.5YR 5/4).	Moist.
						15				...(12') - color change to strong brown (7.5YR 5/6) ...(13-16') - GRANODIORITE BOULDER.	...
10:13						20				WEATHERED BEDROCK: Brown (7.5YR 4/4), fine to coarse, highly weathered with iron-oxide staining and alteration of feldspars to CLAY, poorly indurated GRANODIORITE.	...(16') - set conductor casing.
10:21						25				...	...(20') - switch to downhole hammer.
10:24						30				...	
10:29						35				...(24') - color change to light yellowish brown (2.5Y 6/4).	
						40				...	
						45				...(35') - color change to olive brown (2.5Y 4/3) to dark grayish brown (2.5Y 4/2); moderately weathered, poorly indurated, little to no CLAY.	
10:36						50					
10:41						55					
						60				...(48') - very moist.	
										...(60') - fine to medium.	

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# GeoLogic Associates

## Boring Log

BORING NO.: GLA-G

PAGE: 2 OF 2

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON LANDFILL  
 DRILLING METHOD: AIR ROTARY  
 CONTRACTOR: WDC EXPLORATION AND WELLS  
 LOGGED BY: W. LOPEZ, CHG

DATE STARTED: 7/20/04  
 DATE FINISHED: 7/20/04  
 ELEVATION: 430247.55  
 NORTHING: 1737961.72  
 EASTING: 345.04

GW DEPTH: 40.18 feet  
 TOTAL DEPTH: 104 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USGS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
						60				...(60') - fine to medium.	
10:46						65				...(65'-70') - color change to pale yellow (2.5Y 7/4); medium to coarse.	...(65') - very moist to slightly wet.
10:51						70				...(70') - color change to yellowish brown (10YR 5/8); fine to medium.	
						75					
						80					
10:56						85	▽			...(85') - color change to dark grayish brown (2.5Y 4/2); fine to coarse.	...(85') - first water encountered.
11:02						90					
						95					...(93') - slightly wet.
						100					
11:07						105				Notes:	
						110				1. Total depth of boring 104 feet. 2. Groundwater first encountered at 85 feet on 7/20/04; static water level measured at 40.18 feet on 7/22/04. 3. Borehole geophysics conducted on 7/20/04. 4. Groundwater monitoring well constructed on 7/21/04 (see well completion summary).	
						115					
						120					

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

# GeoLogic Associates

## Boring Log

BORING NO.: LUCIO-2R

PAGE: 1 OF 1

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON LANDFILL  
 DRILLING METHOD: HOLLOW STEM AUGER  
 CONTRACTOR: WDC EXPLORATION AND WELLS  
 LOGGED BY: W. LOPEZ, CHG

DATE STARTED: 6/03/04  
 DATE FINISHED: 6/03/04  
 ELEVATION: ND  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: 12.5 feet  
 TOTAL DEPTH: 50 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USGS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
8:33						0			SM	ALLUVIUM: Brown (10YR 4/2), fine to coarse, well graded SILTY SAND with GRAVEL. GRAVEL is subrounded to subangular.	Slightly moist.
						5					...(5') - moist.
						10					
						15					
						20			SW	Dark gray (10YR 4/1), well graded, fine to coarse SAND with fine to medium, subrounded to subangular GRAVEL.	Wet.
8:45						25					
						30					
8:54						35					
						40					...(40') - saturated.
						45					
8:58						50					
9:03						55				Notes: 1. Total depth of boring 50 feet. 2. Groundwater measured at 12.5 feet. 3. Groundwater monitoring well constructed on 6/3/04 (see well completion summary).	
						60					

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The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

# GeoLogic Associates

## Boring Log

BORING NO.: SLRMWD-34R

PAGE: 1 OF 1

JOB NO.: 9539  
 SITE LOCATION: GREGORY CANYON LANDFILL  
 DRILLING METHOD: HOLLOW STEM AUGER  
 CONTRACTOR: WDC EXPLORATION AND WELLS  
 LOGGED BY: W. LOPEZ, CHG

DATE STARTED: 6/03/04  
 DATE FINISHED: 6/03/04  
 ELEVATION: ND  
 NORTHING: ND  
 EASTING: ND

GW DEPTH: 12.6 feet  
 TOTAL DEPTH: 30 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
12:20						0			SM	ALLUVIUM: Yellowish brown (10YR 5/4), fine, poorly graded, micaceous SILTY SAND.	Dry.
						5					...(5') - slightly moist.
						10					
						12.6				...(12') - fine to coarse with trace of fine to medium, subrounded GRAVEL.	...(14') - wet.
12:28						15					
						20					...(20') - saturated.
						25			SW	Dark gray (10YR 4/1), fine to coarse SAND with trace of subrounded GRAVEL.	
12:40						30					
						35				Notes: 1. Total depth of boring 30 feet. 2. Groundwater measured at 12.6 feet. 3. Groundwater monitoring well constructed on 6/3/04 (see well completion summary).	
						40					
						45					
						50					
						55					
						60					

CONTINUED ON NEXT PAGE

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.